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THE SMALL FRUITS OF NEW YORK

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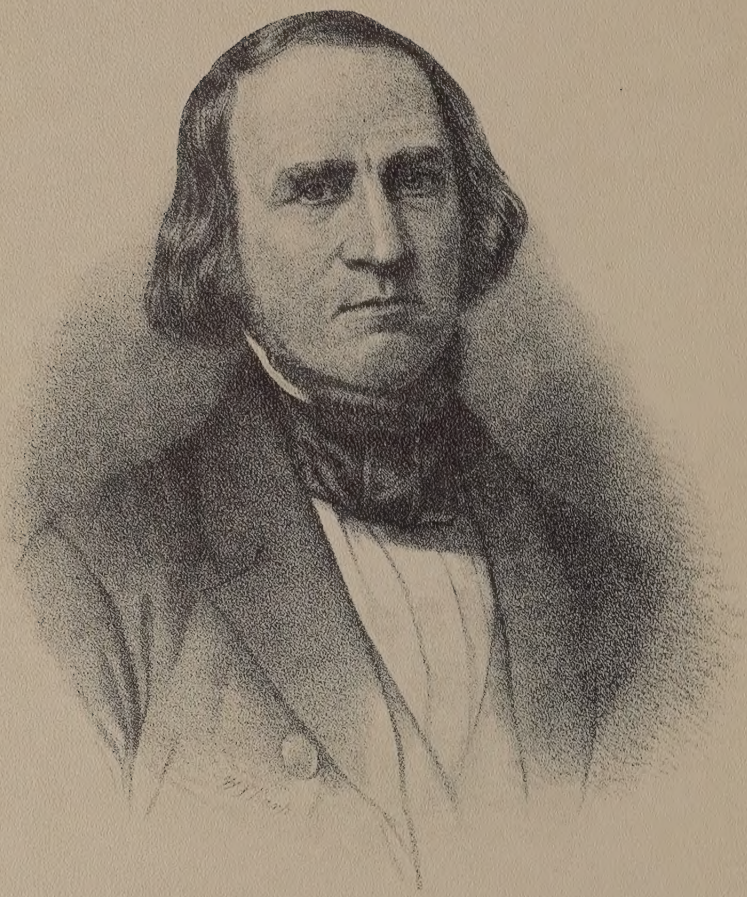

C. M. Stovey.

STATE OF NEW YORK — DEPARTMENT OF FARMS AND MARKETS
Thirty-third Annual Report — Part II

THE

SMALL FRUITS OF NEW YORK

BY

U. P. HEDRICK

ASSISTED BY

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Report of the New York State Agricultural Experiment Station
for the Year Ending June 30, 1925
II

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NEW YORK STATE AGRICULTURAL EXPERIMENT STATION,

GENEVA, N. Y., *September* 18, 1925.

To the Board of Trustees of Cornell University:

GENTLEMEN:— I have the honor to transmit herewith the manuscript and illustrations for the seventh of the series of monographs on fruits which is being published by this Station, to be entitled *The Small Fruits of New York*. I recommend that, as authorized by Chapter 598, Laws of 1923, this be submitted for publication as Part II of the Forty-fourth Annual Report of this Station.

The world-wide appreciation and utilization of the six preceding books of this series, which deal with apples, plums, peaches, cherries, grapes, and pears, gives assurance that this new treatise dealing similarly with small fruits, will be universally enthusiastically accepted and used. As in the case of the preceding volumes, the material presented herein is the result of several years of careful trials of all available small fruit materials on the Station grounds, followed by exhaustive and painstaking laboratory and library work, by Dr. Hedrick and his associates, to insure that the treatise shall be both comprehensive and accurate in detail.

The Small Fruits of New York certainly will find a most useful place in horticultural literature. In addition, it undoubtedly will be a source of inspiration and helpful information to the growers of small fruits the world over.

These various works constitute a monumental contribution of this Station to the science and practice of fruit-growing throughout the entire world. In addition, the information and the actual orchard stock which has been accumulated during these studies afford an exceptional opportunity for the breeding of new and improved varieties, which is the major activity of the Division of Horticulture of this Station.

This book concludes the series of monographs on fruits. The Legislature of 1925 authorized the preparation of a similar series of reports on *The Vegetables of New York*, work upon which is already actively in progress. Furthermore, it is hoped that in the not far distant future, a revision of *The Apples of New York*, to be uniform in size and typography with the other fruit books may be prepared.

R. W. THATCHER,
Director

57645

PREFACE

The Small Fruits of New York is the seventh of the monographs on fruits published by the New York State Agricultural Experiment Station. The object and scope of this treatise on small fruits do not differ from those of its six predecessors on tree fruits. The treatment of the subject is necessarily different, however, for it has required a volume each to give an account of the tree fruits, whereas one volume suffices for the six quite distinct small fruits. The most noticeable difference in treatment is that cultural accounts are not given of any of these small fruits, whereas the present culture of each of the tree fruits was discussed in the several books devoted to them. To give space to tell how each of the small fruits are grown would have made the volume too large, valuable though such matter might be both from practical and historical viewpoints.

The botanical treatment of the small fruits is fuller than was possible with the tree fruits. The authors of the books on tree fruits were all primarily pomologists with little training in systematic botany. The botany of the several fruits as given in the earlier books, especially of the grape and the plum, presented problems that were not satisfactorily solved. The botany of the small fruits is difficult at best, and none of the workers in pomology at this Station are fitted to make contributions worth publishing. The services of a specialist in systematic botany were therefore sought, and the Station was fortunate in obtaining Alwin Berger, a German student of Rubus, to undertake the difficult task of straightening out the botany of cultivated strawberries, bramble, and bush fruits. Even so, only a preliminary report on Rubus is published, since neither time nor material sufficed to complete the study of this most difficult genus.

The fruits to be discussed are the raspberry, blackberry, dewberry, currant, gooseberry, and strawberry. The cranberry is important enough for a place in the book, but this fruit cannot be grown on the grounds of this Station, or in the near neighborhood, so that there is small opportunity for its study. Nor, for the same reason, can there be a discussion of the blueberry, which is now coming into culture with promise of commercial importance in the near future. It is regretable that these fruits cannot be included at a time when the culture of the one is but well started and that of the other just beginning.

As with the tree fruits, the aim is to make *The Small Fruits of New York* a complete record of the development of each fruit, not only as cultivated in New York and the United States, but to some extent in foreign countries as well. As complete a history as possible, both from the botanical and cultural viewpoints, is necessary to show clearly the present and the future of these fruits for the cultivator and the consumer. However, much less need be said about foreign varieties of these small fruits than was written about exotic tree fruits, since only varieties of the several fruits which have originated on the continent, with a few exceptions in currants and gooseberries, have much value in America.

The considerations which have governed the selection of varieties for full description and illustration in this book are somewhat different from those which prevailed in the preparation of the books on tree fruits. Small fruits are newer to cultivation than tree fruits, evolution with them is now in full swing, and varieties are much shorter lived. Therefore it has seemed necessary to give greater prominence to types which show the trend of evolution, some of which may have little value for culture at the present time. Besides these types, varieties valuable for home or market, new varieties of note, and all of the small fruits which have proved their worth in breeding, are given prominence in illustration and description.

As in the preceding fruit books, the references given for species and varieties are those that have been used in ascertaining the history and economic status, or in verifying the description, of the different groups. The synonyms created by pomologists whose works have been consulted are given, but in no case are synonyms given when quoted by one pomologist or botanist from another. It is one of the chief aims of *The Small Fruits of New York* to make certain the correct names of the species and varieties described, often, however, a difficult and uncertain task.

The biographical sketches of men who have been most prominent in breeding, introducing, establishing methods of culture, and describing and classifying small fruits are to be found in footnotes. A knowledge of the lives and work of these men helps materially in following the evolution of the several fruits and of the small fruit industries in the New World.

U. P. HEDRICK,

Horticulturist, New York State Agricultural Experiment Station

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THE SMALL FRUITS OF NEW YORK

PART I

THE BRAMBLE FRUITS

CHAPTER I

THE EVOLUTION OF CULTIVATED RASPBERRIES

Four groups of raspberries, each with many varieties, are commonly grown in North America. These are, in order of introduction to cultivation: The European red raspberry, derived from the wild red raspberry of Europe, *Rubus idaeus;* the American red raspberry, the cultivated form of the American red raspberry, *R. idaeus strigosus;* the black raspberry, or blackcap, sometimes called the thimbleberry, also a cultivated native, *R. occidentalis;* and the purple-cane raspberries, hybrids between varieties of the two reds and the black raspberry. It will be interesting to trace the evolution of these four raspberries.

THE RED RASPBERRY IN EUROPE

The red raspberry cultivated in Europe is derived from an Old World species widely and commonly found in the temperate parts of Europe and Asia. It was named *Rubus idaeus* by Linnaeus from Mount Ida in Greece, though probably not more commonly found on Mount Ida than in many and vast regions in other parts of the Old World. It is now occasionally found wild as an escape from cultivation in the United States, and no doubt has freely hybridized with the native red and probably somewhat with the blackcaps of the New World.

It is idle to speculate as to when the domestication of this raspberry began in Europe. No doubt it crept into fields and was more or less cultivated from the very beginnings of agriculture in the regions where it grows wild. But it did not attract sufficient attention to be called a cultivated fruit until the sixteenth century or nearly 400 years ago. Even then there seem to have been no named varieties, as with the tree fruits at the same time, and not until a century later do named varieties appear.

Some horticultural authorities trace the history of this raspberry as a cultivated plant to the ancient Greeks. But there is little to substantiate such a history. It is a matter of importance to determine whether a plant

has been cultivated 300 years or 3000 years. If the red raspberry was brought into Greek gardens 3000 years ago, as were many fruits and vegetables, and has evolved no further from the wild type than now appears, it does not promise much for the future. If, on the other hand, its improvement over the wild type has come about in the last two or three centuries, much may be expected in its continued evolution. Fortunately, the main facts as to the history of this fruit are easily obtainable and may be set forth in a few brief paragraphs, so that one may quickly measure progress in the domestication of the raspberry.

Greek and Roman agricultural writers who lived before the Christian era do not mention the raspberry, though they have much to say about the tree fruits and the grape. Pliny, at the beginning of the Christian era, writes of wild raspberries as having come from Mount Ida, a statement, no doubt, which led Linnaeus to give the plant its botanical name. Palladius, a Roman writer of the fourth century, is credited with naming the raspberry as one of the garden plants of his time, but other Roman writers of the early Christian era, as Virgil and Columella, say nothing of it. Charlemagne, King of the Franks, at the beginning of the ninth century, left a record of a long list of vegetables and fruits to be grown in his garden, but the raspberry is not among them. The first list of English vegetables and fruits, *The Forme of Cury*, published in 1391, does not enroll the raspberry.

It is safe to put the date of the first record of cultivated raspberries as 1548 when Turner, the English herbalist, says of them " they growe in certayne gardines in Englande." Nearly a century later, 1618, William Lawson, another English farm writer, in his *A New Orchard and Garden* gives a pretty picture of a garden in which raspberries and currants border the paths. But it is not until 1629 that any writer on cultivated plants more than mentions the raspberry as a garden plant. At the date given Parkinson[1] published his *Paradisi in Sole Paradisus Terrestris*, the third part of which is called *The Orchard*, and the first chapter of which is devoted to the raspberry. All of this short chapter is of interest and is here reproduced. To give the chapter its proper setting Parkinson's introduction to *The Orchard* must also be copied.

" The Orchard

" Containing all sorts of trees bearing fruit for mans use to eate, proper and fit for to plant an Orchard in our climate and countrie: I bound it

[1] Parkinson, John. *Par. Ter.* 557. 1629.

with this limitation, because both Dates, Olives, and other fruits, are planted in the Orchards of Spaine, Italy, and other hot countries, which will not abide in ours. Yet herein I will declare whatsoever Art, striving with Nature, can cause to prosper with us, that whosoever will, may see what can bee effected in our countrie. And first to begin with the lower shrubbes or bushes, and after ascend to the higher trees." Then follows a discussion of the raspberry.

"The Raspis berrie is of two sorts, white and red, not differing in the forme either of bush, leafe, or berry, but onely in the colour and taste of the fruit. The Raspis bush hath tender whitish stemmes, with reddish small prickes like haires set round about them, especially at the first when they are young; but when they grow old they become more wooddy and firme, without any shew of thornes or prickles upon them, and hath onely a little hairinesse that covereth them: the leaves are somewhat rough or rugged, and wrinkled, standing three or five upon a stalke, somewhat like unto Roses, but greater, and of a grayer greene colour: the flowers are small, made of fine whitish round leaves, with a dash as it were of bluish cast over them, many standing together, yet every one upon his owne stalke, at the tops of the branches; after which come up small berries, somewhat bigger than Strawberries, and longer, either red or white, made of many graines, more eminent then in the Strawberry, with a kinde of douninesse cast over them, of a pleasant taste, yet somewhat sowre, and nothing so pleasant as the Strawberrie. The white Raspis is a little more pleasant then the red, wherein there is small seede inclosed: the rootes creepe under ground verie farre, and shoote up againe in many places, much encreasing thereby.

"There is another whose stemme and branches are wholly without prickles: the fruit is red, and somewhat longer, and a little more sharpe.

"The leaves of Raspis may be used for want of Bramble leaves in gargles, and other decoctions that are cooling and drying, although not fully to that effect.

"The Conserve or Syrupe made of the berries, is effectuall to coole an hot stomacke, helping to refresh and quicken up those that are overcome with faintnesse.

"The berries are eaten in the Summer time, as an afternoones dish, to please the taste of the sicke as well as the sound.

"The juyce and the distilled water of the berries are verie comfortable and cordiall.

"It is generally held of many, but how true I know not, that the red wine that is usually sold at the Vintners, is made of the berries of Raspis that grow in colder countries, which giveth it a kinde of harshnesse: And also that of the same berries growing in hotter climates, which giveth unto the wine a more pleasant sweetnesse, is made that wine which the Vintners

call Alligant: but we have a Vine or Grape come to us under the name of the Alligant Grape, as you shall finde it set downe hereafter among the Grapes; and therefore it is likely to be but an opinion, and no truth in this, as it may be also in the other."

In John Rea's *Flora, Ceres and Pomona*, 1665, is a catalog of the garden plants of the time. From the introduction to *The Third Book, Pomona*, one would expect to find raspberries mentioned if they were commonly grown at the time. Rea[1] says that his book on Pomona: "Acquaints you with the finest Garden-fruits, Vines & Berries, our English Nurceries do afford; as also with some Flower-bearing Trees, Shrubs, and Greens, more familliar than those you find in the first book; with the order that is to be used in their Propagation, Planting and Improvement."

Rea discusses most excellently all of the tree fruits we now grow in America including such rarities as the service-tree, medlar, persimmon, cornus, and mulberry, and has full and very good descriptions and cultural directions for gooseberries, currants, and barberries, but does not mention the brambles or the strawberry.

For a century after Parkinson's great herbal was published the raspberry was barely spoken of in the dozen or more garden and orchard books of the times. Just a hundred years after, Batty Langley's *Pomona* appeared, to take rank as about the best of the early English books on fruit. Here one might expect a fuller discussion of the cultivated brambles, yet there is scarcely as much as in Parkinson. Langley[2] names but three kinds as follows: "We have but three Kinds of Rasberries in England, viz. The White, the Red, and the Purple: The wood of the White and Red is of a bright Colour, and almost smooth; but that of the Purple is a dark Brown, and very thick set with small prickly Excrescences."

Of these he[3] says: "The Scarlet Rasberry (Fig. V, Plate LVI) is the most common, and first ripe June 1, 1727; 'tis a very fragrant pleasant Fruit, and a great Bearer. The White Rasberry mix'd with the Red, makes a beautiful Appearance at the Table, and therefore we must not fail of having some of them for that Purpose, notwithstanding that they are not in such great Esteem as the Scarlet."

The next account worth recording is that of Hitt[4] in *A Treatise of Fruit-trees*, 1757, in which four groups are named, for it can hardly be said

[1] Rea, John *Flora* 3:203. 1665.

[2] Langley, Batty *Pomona* 122. 1729.

[3] *Ibid.* 123.

[4] Hitt, Thomas *Treat. Fruit-tr.* 248. 1757.

that true varietal names were yet in use for any of the raspberries. Hitt writes: "The rasberry plant cannot properly be called a fruit-tree, yet as the fruit is valuable, I shall give my method of planting, dressing, &c. I am only acquainted with four kinds, except the flowering sort, viz. the common small red, and white; the other two sorts are much larger, of the same colour, and are called rombullions; the former has the richest flavour, but in dry seasons they are apt to wither if they are planted upon sand or gravelly land, but will bear well on loam or clay, that is not too wet."

Thomas Mawe and John Abercrombie,[1] great authorities on gardening in the last half of the eighteenth century, wrote the *Universal Gardener and Botanist; or a General Dictionary of Gardening and Botany*. The book quite lives up to the pretentious title, and one may well expect that all of the varieties of raspberries known would be listed. Assuming that such is the case, the number of sorts at this late date in pomological history, 1778, is but four, as follows: "Varieties. Common red Raspberry — white-fruited Raspberry — twice-bearing red, and white Raspberry, producing the first crop of fruit in July, and the second in September; and is esteemed a curiosity — smooth Raspberry, the stalks, &c. being devoid of armature." This quotation is of particular interest as it contains an early if not the first reference to double-cropping raspberries.

The next notice of raspberries in England worth recording is found in the second edition of George Brookshaw's *Pomona Brittanica*, 1817, in which three varieties are named and are illustrated in a very good colored plate. The three varieties are "Red and White Antwerp, and the Common Raspberries." In describing the White Antwerp Brookshaw condemns all raspberries with faint praise. He says: "Raspberries not being so rich in their flavor as strawberries, are not much eaten alone; their smell is more grateful than their taste."

A little later, 1823, in his *Horticultural Repository*, Brookshaw[2] illustrates only the Red and White Antwerps but gives this interesting account of the raspberry:

"The Raspberry was anciently called Raspisberry, and, in some countries, Hind-berry; it is a native of many parts of Europe, being found in rocky mountains, moist situations, woods and hedges; the Red sort is indigenous to England, growing wild in some parts of the country. The fruit is grateful to most palates as Nature presents it, but the flavour is

[1] Mawe-Abercrombie *Univ. Gard. Bot.* 1778.

[2] Brookshaw, George *Hort. Reposit.* 1:25. 1823.

improved by sugar; accordingly, it is much esteemed when made into a sweetmeat. The ripe fruit is fragrant, subacid, and cooling; a grateful syrup is prepared from the juice. Raspberry and Strawberry wines are highly esteemed for their pleasant flavour; and, when diluted with water, form a safe and agreeable drink in the heats of summer,—or, in the more trying moments of febrile suffering. Raspberries are also used to flavour brandy, vinegar, &c. The fresh leaves are the favourite food of kids."

This quotation shows that the raspberry, even a hundred years ago, was not much cultivated, and seems not to have been a popular table fruit, but was grown chiefly to furnish a flavor, a drink, or for a medicine.

Still another quotation may be given to show that the raspberry is a comparatively newcomer in English gardens. In 1826 the Horticultural Society of London published a *Catalogue of Fruits*.[1] This list "comprehends nearly the whole of those which have ever appeared in print in Foreign or English Lists of authority, and as many unpublished kinds as have appeared to deserve record." Yet only 23 sorts with 25 synonyms, are listed. The introductory paragraph[2] gives the status of raspberry culture at this time:

"The Raspberries all belong to Rubus Idaeus, and are here separated from the other species of Rubus, as being the only ones much cultivated. That the varieties of this fruit are numerous will be seen by the following list of names, but they are not distinguished generally by gardeners, who do not appear to have paid them so much attention as they deserve. The differences between the respective qualities of the varieties are very considerable. The French names are not introduced, because they are doubtless synonyms with our own, but have not yet been sufficiently proved to be referred to their places."

There is no need to trace the history of the raspberry further in England for the varieties that now begin to appear bring us quite to our own day. Nor is it necessary to attempt to follow the evolution of this fruit in other European countries. Its domestication has not been more rapid in any other of the Old World countries than in England. Perhaps too many pages have already been given to the history of the fruit, the chief object of which is to establish the fact that *Rubus idaeus* has received the attention of gardeners but a short time, and that its evolution has not gone far, especially as compared with that of the tree fruits.

[1] *Lond. Hort. Soc. Cat.* V. 1826.

[2] *Ibid.* 196.

THE RED RASPBERRY IN AMERICA

There was little need of introducing European red raspberries in America or attempting to domesticate the native red until towns and cities were built. Wherever its culture could have succeeded the native plant runs riot in waste places. It is one of the first plants to follow forest fires, to creep into newly cleared lands, and becomes a weed in fence corners and neglected fields. Not until agriculture was well advanced, with little land in waste, could there have been a need for cultivated raspberries.

There seems to be no mention of the American red raspberry as a garden fruit until 1771 when in a list of plants to be sold by William Prince, at Flushing Landing, New York, three raspberries are offered for sale. These are the White, English Red, and American Red. In 1790, in a similar list, the Large Canada is added. Thus it would seem that at the end of the eighteenth century four red raspberries were cultivated in New York, two of which, according to the names, were of the Old World species and two of the New World type. But William Robert Prince in 1831, in a statement to be quoted later, says that English Red is a native raspberry and changes its name to Common Red. So far as records show, the first native raspberry to come into cultivation was the English Red, the origin of which is unknown but antedates 1771.

In his *American Gardener's Calendar*, the first American book in which orchards and gardens receive detailed attention, McMahon[1] has this to say of raspberries:

"There are many varieties of the *Rubus idaeus*, or European raspberry, but the most preferable are the large common red, the large common white, the red Antwerp, and the white Antwerp raspberries. The smooth cane double-bearing raspberry, is cultivated in some places, as it produces one crop of fruit in June, and another in October; but the fruit are few and small, which has occasioned its being neglected. Of the *Rubus occidentalis*, or American raspberry, we have two varieties, the black fruited; and the red fruited; the latter is preferable in taste and flavour to the black variety."

All of McMahon's named sorts are probably Europeans.

For the first satisfactory account of red raspberries in America we must wait for William Prince,[2] in 1828, who says of varieties then growing in America:

[1] McMahon, Bernard *Am. Gard. Cal.* 517. 1806.

[2] Prince, William *Treat. Hort.* 39. 1828.

"This fruit was originally discovered by the Greeks growing on Mount Ida, whence the specific name *Idaeus*. At present we have not only many varieties of the above, but several other species, which are cultivated for their fruit in our gardens: among which the Common Red, which is sent to our markets in immense quantities, and is largely used in the making of raspberry brandy; is of fine flavour and much esteemed, and is the most productive; also the White and the Red Antwerp, which are of very large size and high flavour — of these the White is generally preferred — they are both productive and excellent fruits. The American White and American Black are inferior in flavour, but are nevertheless esteemed by many persons, particularly the white variety. The Twice Bearing, if properly managed, is quite an acquisition. In general, they produce one crop at the usual period, and a less one late in the season, but as a full crop is most desirable, it is said to be best to cut off the whole of the stalks quite to the ground early in the spring, in order to force a strong growth of young wood, which will yield a large quantity of fruit, as it is the wood of the same summer that produces the fall crop. The Red Cretan is a raspberry of delicate flavour; the Cane is also considerably cultivated, and a number of others; the Purple Flowering is only useful as an ornamental plant, its fruit being of no value."

William Robert Prince, son of William, in his admirable *Pomological Manual*, 1832, gives a much more detailed account of the raspberries then grown in the United States, both as to pomological varieties and as to species. He published clear and accurate descriptions of twelve garden varieties and names six more varieties which "merit culture." He changes the name of English Red, a native berry cultivated as we have seen since before 1771, to Common Red and puts it under *R. americanus*. This old native, now to go under the name Common Red, seems to be the best known and the most widely cultivated red raspberry of that time. Prince[1] writes of it:

"This variety is a native of our state, and grows naturally in the Catskill mountains, but notwithstanding this fact, it is very frequently denominated *English Red*. The shoots are of a dark red hue, and grow to a great length, often attaining to ten or twelve feet, and even more. On the shoots of the same year the spines at and near the base are of a purplish colour, and those on the upper part, greenish with brown or purplish barbs or points. The fruit is one of the earliest at maturity, of medium size, fine flavour, and held in great estimation, as well for the dessert as for making cherry brandy, &c. Indeed this is the only variety at present cultivated to a great extent for the supply of the New York Market, and

[1] Prince, William Robert *Pom. Man.* 2:166. 1832.

there are probably near one hundred acres of land on Long Island appropriated to its culture. The plants do not throw up suckers during the summer season as most other varieties do, but in the spring, young plants shoot up in great numbers, from the small roots on all sides of the main stock."

From Prince's description one sees at once from color and vigor of canes, and method of reproduction, that the Common Red, first native raspberry to attain prominence in American gardens, and for more than a century the standard raspberry in the United States, is a hybrid between a red and the wild black of the Atlantic seaboard. It would be interesting to know its history. Did it originate in a garden or in the wild? Where and by whom was it first cultivated?

Besides the Common Red, Prince describes Red Antwerp, Yellow Antwerp, Barnet, Brentford Red, Tall Red Cane, Short-jointed Cane, Cretan Red, and Prolific Red, eight varieties which either from their history or characters one may feel sure came from the Old World. Three others are natives, of which, Virginia Red, Prince puts in *Rubus strigosus* where it most certainly belongs. The third native sort, counting the Common Red as the first, Prince calls the Pennsylvanian, which he received "from a London nursery under the title of *Rubus pennsylvanicus* but have since found to be identical with plants received from the forests of the State of Maine." Prince may have been mistaken and there is a doubt as to whether this sort comes from the Old World or the New World.

The fourth native sort is the Canada Red which was advertised in the Prince catalog of 1790. Of it the *Pomological Manual*[1] says as to history: "I first noticed this variety growing along the road sides, a few miles from Montreal, where the plants are to be met with in great abundance. The fruit is collected from them by the country people, and large quantities sold in the markets." This variety, it would seem from Prince's description, belongs in *R. idaeus strigosus*, although our author puts it in "*R. canadensis*." This is probably the first pure-bred native red Rubus to be truly domesticated.

The list of cultivated raspberries changes rapidly now. Many scarcely survive introduction. Few last more than two decades. But in the early years of raspberry culture varieties were long lived. In the first edition of Downing, 1845, the varieties are much the same as those listed by Prince in 1832. Prince listed eighteen red raspberries; Downing twelve.

[1] Prince, William Robert *Pom. Man.* 2:168. 1832.

Eight of Prince's varieties were described by Downing; four were new. Fourteen of the varieties in Prince's book were European; four American. Eleven of Downing's reds seem to be Old World sorts; only one certainly came from the New World.

In a history of the red raspberry in America tribute should be paid to the work of Dr. William D. Brincklé[1] who devoted many years in the middle of the last century to improving this fruit. His efforts were chiefly with *Rubus idaeus* and at first thought one thinks that he might have served pomology better had he sought to improve the hardier and more vigorous native red; yet in his use of Idaeus he established a standard of high quality to be found only in the European red and so forced breeders to keep high quality in mind in domesticating the native species.

Another impetus was given the raspberry industry by the publication, in 1867, of Andrew S. Fuller's *Small Fruit Culturist.* Until Fuller[2]

[1] Dr. William Draper Brincklé, originator of many red raspberries, strawberries, and of two pears, was one of the most prominent American pomologists in the middle of the last century. He was born in Delaware in 1799, and following in his father's footsteps began the practice of medicine at the early age of twenty-one in Wilmington, but to find a larger field for his profession moved to Philadelphia in 1825, where he lived the remainder of a busy life in the vocation of medicine and the avocation of pomology. During his last few years a physical affliction made him an invalid and cut short his life; he died in 1863 in his sixty-fourth year. Dr. Brincklé's most important work in pomology was the amelioration of the strawberry and the red raspberry. Beginning with the strawberry, which he hybridized in a little room in his Philadelphia home, he bred and introduced several fine varieties, of which, perhaps, Cushing was the most notable. Turning his attention next to red raspberries, he produced the Col. Wilder, Cope, Cushing, and Orange, as his finest sorts, of which for many years Orange was a standard commercial variety and is still the acme in quality. Wilmington and Catherine Gardette pears were his chief contributions to the tree fruits. For a quarter of a century, Dr. Brincklé was a leader in American pomology, during which time he served terms as president and vice-president of the Pennsylvania Horticultural Society and as vice-president of the American Pomological Society. In 1860 he was editor of Hoffy's *North American Pomologist*, a most admirable pomological periodical with colored plates. His life was an eminently useful one in medicine and pomology, besides which he was distinguished as a man of great culture and refinement and was beloved by a wide circle of friends in private life, medicine, and pomology.

[2] Andrew S. Fuller, pomologist, scientist, and pomological writer, was born in Utica, New York, August 3, 1828, and died May 4, 1896, at Ridgewood, New Jersey. Fuller began work at an early age as a carpenter and builder of greenhouses. In Milwaukee, Wisconsin, he built a small greenhouse on a city lot and in it began the work which soon brought him to the attention of lovers of plants and fruits, with such renown that William R. Prince, Flushing, Long Island, then a leading nurseryman in America, offered him the management of his greenhouse. This position he accepted in 1855, but remained with Prince only two years, leaving to engage for himself in small fruit culture at Brooklyn, New York. He soon specialized in breeding strawberries, and out of thousands of seedlings selected some dozen or more which he named. The best one of these was Col. Ellsworth, an excellent sort, plants of which to the number of 300,000 were sent out by the *New York Tribune* as premiums to subscribers. His first book, written at about this time, was the *Strawberry Culturist.* In the early sixties he moved to Ridgewood, New Jersey, where he planned and planted home grounds that soon became a botanical garden as he grew almost every species and variety of ornamental trees, shrubs, small fruits, and nuts which could be made to grow in New

wrote there was no good source of practical information for either the amateur or the professional cultivator of small fruits. The *Small Fruit Culturist* is an account of personal experience and observation extending over a long period of years and immediately became the standard authority in this field of pomology and so continued for a half century. Before the date of Fuller's publication there had been a score or more American books on tree fruits and about as many on the grape, but not until after the middle of the nineteenth century were small fruits considered of sufficient importance to command the attention of an author. The decade in which Fuller's book appeared, 1860 to 1870, may be set as the period in which the small fruit industry as now carried on in North America began.

THE AMERICAN BLACK RASPBERRY

The domestication of the black raspberry is but begun. It is not yet a hundred years since the first named variety came under cultivation, and many if not most of the kinds that have been named have been brought in from the wild, while probably few or none are more than two or three generations from wild plants. The black raspberry readily responds to cultivation in varied soils and climates, the plants are easily cared for and very productive, and the product is so well suited for dessert, culinary purposes, drying, and canning that the species has within a hundred years become one of the leading small fruits. Plant breeders are finding that it responds well to the breeder's art; in crosses with other species, and cross-breds between varieties within the species, results are such that the future of the black raspberry is a most promising one.

Early explorers and settlers on the Atlantic seaboard often mention the black raspberry as one of the delectable wild fruits of the country. It was found from New England to the Carolinas in the borders of woods, as a fringe about fields, around the stumps that dotted the clearings, and came

Jersey. Soon after *Strawberry Culturist* appeared, he published *Grape Culturist*, this in turn to be followed by *Small Fruit Culturist*, *Practical Forestry*, *Propagation of Plants*, and the *Nut Culturist*. Of his several pomological books, *Small Fruit Culturist* is probably the best and certainly served more materially in building up a great industry than any of his other works. Besides these books he was a constant correspondent to the *American Agriculturist*, *Rural New-Yorker*, of which he was part owner for a time, the *New York Sun*, of which he was agricultural editor for twenty-six years, and of *American Gardening*. He was also editor of the *Record of Horticulture* which appeared in 1867 and 1868. Besides his interest in pomology he gave attention to entomology, mineralogy and archeology, and collections in these sciences gave him renown in all of them. He was active in all pomological societies of his state and the country during his active lifetime. Probably no other American has labored longer or more devotedly for pomology and horticulture, in both of which he set high ideals in all he did.

uninvited in the gardens. That it was not earlier domesticated and improved is due to the great abundance of the wild crop; to the preference for the red raspberry, varieties of which were brought from Europe; and to the fact that small fruits of all kinds received scant consideration from fruit growers until recent years.

It is impossible to say when the black raspberry was introduced into cultivation. Brought from the fields into a good garden any wild black raspberry plant becomes markedly more productive, and individual fruits increase one-fourth or more in size. It is a convenience to have fruit at hand and not have to go to fields or woods for the daily supply. Therefore, thrifty housewives must have insisted on having plants of this fruit as inhabitants of their gardens. All of the early American books on fruits mention the black raspberry but do not list varieties. The first named variety seems to have been the Ohio Everbearing, found by Nicholas Longworth, Cincinnati, Ohio, in 1832, and by him named and offered as a garden plant.

Some years before this, about 1825, Thomas Rivers of Sawbridgeworth, England, sowed seeds of a black raspberry and gave the offspring attention through several generations for thirty or forty years. No permanent varieties came from Rivers' work but his experience in part may be repeated, as a very good account of what happens in growing hybrid raspberries. The account,[1] considerably condensed, is as follows:

"Some time ago (probably nearer forty than thirty years since) I received from a very old gardener, living at Weathersfield, near Braintree, in Essex, a curious kind of Raspberry, which he called the 'Black Raspberry'. In the course of years I raised many generations from my Black Raspberry; the seedlings all partook more or less of the qualities of the parent stock, giving berries more or less purple and acid, and keeping themselves distinct from our Red Antwerp and other sorts of Raspberries. Some ten or twelve or more years since I received, among many novelties, from the late A. J. Downing, of America, a plant of the Ohio Everbearing Raspberry. This was planted, with other new kinds, in a department near to my seedling black Raspberries, and, after observing its peculiar nature of bearing a full crop in autumn, it did not attract further notice, as its fruit was small and acid.

"A few years — perhaps two or three — after the introduction of this sort, I happened to be passing a bed of my seedling black Raspberries which had been raised in the usual way, and observing among them some canes different in colour to the others — they had the blue tinge peculiar to the

[1] *Gard. Chron.* 516. 1867.

canes of the Ohio Raspberry — I paid them very close attention. They bore fruit in summer of a darker colour than those they were growing amongst, and smaller, varying in colour as did the canes. I thought at first that they were sports from my original black Raspberry, resulting from — may I so call it?— domestication; and although interested, I was not surprised, this being reserved for the autumn, for then surprise did come, the canes which I had noticed, or rather the young canes of the growth of the summer, putting forth in October an abundant crop of fruit, the canes which had given fruit in summer being then dry and sapless. The colour of the canes, most of them having the pretty blue tint of the sort from Ohio, induced me to think that I had by accident obtained some curious cross-breeds. I now believe this to have been the fact.

"I wished, however, to see the end of this curious outbreak; for I thought why should not other kinds of Raspberries growing near the Ohio Raspberry, and from which seedlings had been raised, receive a stain? I therefore raised a number of seedlings from the first apparent hybrids I discovered, and I have since then raised three or four generations, confining myself to the seed taken from the largest berries of a deep purple colour, hoping to establish a race that might be reproduced from seed without difficulty; for I must add that nearly all my black autumnal Raspberries are like their Ohio parent — they make a large stub after being repeatedly cut down, but produce no suckers from their roots. The result of my sowing carefully-selected seed from the finest purple berries produced in autumn is most curious.

"I have had red summer Raspberries, red and pink, flesh-coloured, and large white autumnal sorts; yellow summer and yellow autumnal varieties; small-berried black autumnal Raspberries of gigantic growth — making strong canes 15 feet in length, and some dwarf bushes 2 feet in height; in short, such a *mélange* as I think never before was seen in a bed of Raspberries. It would take a long chapter to describe them; but as the greater portion were horticulturally valueless, they have been destroyed. I have, however, settled down to a few sorts, which seem as if they would, with the exception of a few slight vagaries, prove constant. One, a large black autumnal variety, with blue canes, ripening in October; another with large black berries, and with canes not so blue, ripening in August; another with very large orange berries, and another with large white berries, covered with a glaucous bloom, both ripening in October. It is curious to note that the sorts with pale berries put forth suckers from the roots like the common kinds of Raspberries, whereas those with blue canes and black berries put forth none, yet all came from the same source — the black autumnal hybrids."

Let us now go back to the Ohio Everbearing. This variety as we have said seems to have been the first blackcap to be named and introduced

into American gardens. It is a double-cropping sort and curiously enough had no great value for the normal fruiting season, since the plants were so unproductive, and the berries so small and poor in quality that in competition with summer-bearing sorts introduced later it quickly disappeared. Its introducer, Nicholas Longworth,[1] as before stated, gives the following history of the variety: " When driven into the interior of the state by the cholera, in September and October of 1832, I found a raspberry in full bearing, a native of our state, and the only everbearing raspberry I have ever met with. I introduced it the same winter into my garden, and it is now cultivated by me in preference to all others, and my table is supplied from the beginning of June till frost."

Longworth at this time was the greatest pomological authority west of the Atlantic seaboard and the chief American authority on grapes. He now tried to introduce his Ohio Everbearing by distributing plants to friends, writing articles about it to American and English magazines, and by cultivating it commercially at Cincinnati. Yet with all his perseverance, backed by his pomological prestige, it scarcely caused a ripple in the pomology of the times. Not until the sixth meeting of the American Pomological Society, held in 1856, was it ever brought up for discussion. Although introduced twenty-four years previously, eastern fruit growers had scarcely heard of it and there was confusion both as to its identity and origin. At this time, not more than three or four black raspberries had been named. Improvement of the blackcap had scarcely begun in the middle of the nineteenth century.

The real start in the domestication of the black raspberry was made in 1850, not by the introduction of a superior fruit but by the discovery of a better method of propagation than had hitherto been known. The red raspberry, then under cultivation in most communities, is propagated by suckers. The black raspberry throws no suckers and is propagated but slowly and laboriously, if at all, by any method of division. As all now know, its tips bend over in the autumn and take root. H. H. Doolittle, Oaks Corners, New York, almost in sight of where these words are being written, adopted the method of nature in growing the black raspberry, and was so successful that the commercial cultivation of this fruit may be said to have begun with his discovery.

Doolittle, it appears, was much more concerned about his method of propagation than over any particular variety. He went to the fields,

[1] Bailey, L. H. *Ev. Nat. Fruits* 276. 1898.

for a few years at least, and propagated any black raspberry. The plants he sold were distributed under several names but for ten years chiefly as Doolittle's Improved Black Cap. Leander Joslyn, Phelps, New York, a neighbor of Doolittle, had found a superior sort growing wild which Doolittle propagated and sold as Joslyn's Black Cap. Several other names to be given in the synonymy of Doolittle, in the chapter on varieties, were also used for this berry, but in September, 1860, the American Pomological Society formally bestowed the name Doolittle Raspberry on one of the sorts sent out by Doolittle and as such it was grown for some forty or fifty years.

Other named varieties of blackcaps now began to appear, but the popularity of the fruit increased slowly. Wild plants supplied the country, and city people preferred the red sorts. Besides, there were no facilities for shipping and marketing. Bramble fruits, and least of all this one, did not begin to receive attention until the eighties of the last century when in western New York dried blackcaps became an article of commerce and several thousand acres were planted to this fruit. Later, black raspberries took a place in the markets with the reds; they came in demand for home plantations; improved varieties were introduced from year to year; and the black raspberry industry may be said to have been established.

HYBRID RASPBERRIES

Neither botanist nor pomologist could mistake either of the two red raspberries or the black raspberry for any other bramble fruit. There is a third group of varieties under cultivation, however, which both botanists and pomologists have long been puzzled to place. These are the sorts rather misleadingly known as the purple-cane raspberries.

Prince, in his *Pomological Manual*, 1832, describes two varieties undoubtedly of this group, one of which he puts in "*R. Americanus*" and the other in "*R. Pennsylvanicus*." Fuller, in his *Small Fruit Culturist*, 1867, supposes them "to belong to the same species as the common blackcap," and then says "but as they have a few characteristics in common, which are not found in the wild blackberry, nor in any other species, I have placed them in a list by themselves." To this group he gave the name "Purple-canes," although there had long been a variety called the Purple Cane. This old Purple Cane he selected as the type of the group which he characterizes as follows:[1] "The principal difference between the

[1] Fuller, A. S. *Sm. Fr. Cult.* 146. 1867.

varieties of the Black Cap and the Purple Cane is in the fruit. The first, as is well known, have rather dry, tough fruit, with a peculiar flavor. Its grains are numerous, and very irregular in size. The fruit of the Purple Cane, as a rule, is rather soft, juicy, often very brittle, the grains separating very readily. Color, varying from light red to dark brownish-purple, but never black; the flavor mild and agreeable, but entirely distinct from those of the true Black Raspberry."

Two years after Fuller wrote, 1869, Charles H. Peck, State Botanist of New York, took these purple-canes to be a distinct natural species growing wild in New York and gave them the name *Rubus neglectus*, a name still recognized for this group by most botanists. The following year, 1870, C. F. Austin, in the *Bulletin of the Torrey Botanical Club*, struck upon the true origin of the purple-canes in his statement that *R. neglectus* is "a hybrid, I have no doubt, between *R. strigosus* and *R. occidentalis*."

Bailey,[1] in *American Garden*, 1890, puts the purple-canes in Peck's *R. neglectus*, and gives the botanical characters which distinguish cultivated purple-canes from the red and black raspberries. He suspects a hybrid origin but does not affirm it. He says: "It has been said that *Rubus neglectus* is a hybrid between *R. strigosus* and *R. occidentalis*, and its intermediate and inconstant characters seem to warrant this disposition of it. But a hybrid origin is not proved, and I am glad that its features have been definitely described before its origin is determined, as it enables us to draw discriminating characters in one of the most confused groups of our fruits. There is no question but that the red and black raspberries will cross. We have made a number of hand pollinations this year, and if I am successful in growing the seeds I shall soon have a hundred or two plants to compare with *Rubus neglectus*."

Card,[2] in his excellent book, *Bush-Fruits*, 1898, introduces his discussion of the purple-cane group with this paragraph: "In this group I have endeavored to include all those varieties which are intermediate in character between the red and the black raspberry. Not all of these belong to the true Purple-cane type. The Philadelphia and its numerous seedlings are much nearer to *Rubus strigosus* than to *Rubus occidentalis*. They propagate by suckers, though somewhat sparingly, and are, to all intents and purposes, red raspberries of a slightly darker hue, while the true Purple-cane type propagates by tips, being like black raspberries in habit." Card at this

[1] Bailey, L. H. *Am. Gard.* 11:722. 1890.

[2] Card, Fred W. *Bush-Fr.* 177. 1898.

time believed that there was at least a "purple-cane type." In a later paragraph he closes the discussion of this group with the opinion that the purple-canes are "primarily of hybrid origin."

Soon after Card's book appeared, there was a general awakening, new teaching, and a great stimulus to the work of plant breeding due to the discovery of Mendel's hitherto unnoticed records of experiments in crossing plants. In due course, a number of breeders crossed red and black raspberries and proved definitely what had become very generally believed; namely, that hybrids are common in the garden and in the wild between black and red raspberries, and that many of our cultivated raspberries, probably more than were then or are now suspected, are hybrids. Among those are the sorts that pomologists had been calling "purple-canes."

Can these hybrid varieties be put in a group distinguished by botanical characters? Fuller, Bailey, and Card, most eminent authorities on American cultivated raspberries, as we have seen, assembled the hybrids having purple canes and gave to the assemblage distinguishing marks of plant, fruit, and method of propagation. With present knowledge, these men would probably be less specific in designating characters to the purple-cane raspberries. This brings us to a discussion of the results obtained in crossing these two fruits.

In attempts to improve raspberries through hybridization at this Station the progeny of crosses between black and red sorts to the number of 617 have fruited. The fruits of 606 of these were purple, varying from dark red to almost black; there were no true reds nor true blacks. Eleven plants bore yellow fruits. Purple predominated in cane-color in 376 plants; red predominated in cane-color of 220 plants. Of the 606 plants, 534 bore spines and 72 were spineless. The size, number, and margins of leaflets were exceedingly various, as were the number of fruits and the styles of inflorescence. From these statements one sees at once that hybrids between red and black raspberries are exceedingly variable and that it is impossible to hold them in a species or other botanical or horticultural group.

Of the progeny of purple-fruited varieties self-pollinated to the number of 68, there were 60 plants which bore purplish fruits ranging from red-purple to black-purple with no true reds and no true blacks. Eight plants bore yellow or amber fruits. The canes of 38 plants were reddish brown; of 6 purplish brown; 4 were brown; 10 red; and the canes of 10 were green.

Of the 68 plants, 59 bore spines and 9 were spineless. In manner of reproduction, 64 naturally grew from suckers and but 4 from tips. There is, as these figures show, no stability in the *R. neglectus* of Peck and other botanists. The progeny of crosses between red and purple varieties to the number of 759, and of red and black varieties to the number of 389, give further evidence as to the characters of hybrids between these red and black species and the great variability of the hybrids.

Besides these hybrids between red and black raspberries there are now many cultivated brambles which are reputed offspring of one or another of the red raspberries crossed with a blackberry or a dewberry. Since these are generally less like raspberries than the other fruits, we may leave them to be discussed with blackberries and dewberries.

MAGNITUDE OF THE RASPBERRY INDUSTRY

Raspberries began to attract attention as a commercial crop in the United States in the seventies or early eighties of the last century. It is doubtful if in 1880 there were more than 2000 acres of raspberries grown in the country. It will be interesting to see what growth raspberry growing has made in the country in fifty years. Fortunately figures for our purpose are available from the Fourteenth Census taken in 1919. Table I gives these figures.

TABLE I.—ACREAGE, YIELD, AND VALUE OF RASPBERRIES AND LOGANBERRIES IN THE UNITED STATES IN 1919, BY DIVISIONS AND STATES.

DIVISION AND STATE	Acreage	Yield (in quarts)	Value
UNITED STATES	54,256	61,333,509	$13,386,125
Geographic Divisions:			
New England	1,581	1,374,601	$413,161
Middle Atlantic	14,871	16,328,692	4,112,072
East North Central	18,848	14,714,507	3,345,527
West North Central	6,774	5,616,192	1,327,976
South Atlantic	2,343	1,694,922	333,845
East South Central	841	599,320	119,518
West South Central	270	191,458	47,083
Mountain	1,589	1,495,425	347,981
Pacific	7,139	19,318,392	3,338,962
New England:			
Maine	311	279,254	$78,193
New Hampshire	208	131,145	38,016
Vermont	246	177,575	49,720
Massachusetts	481	468,715	159,211
Rhode Island	52	47,345	15,135
Connecticut	283	270,567	72,886

TABLE I — (*Continued*).

DIVISION AND STATE	Acreage	Yield (in quarts)	Value
Middle Atlantic:			
New York	10,467	11,674,978	$2,917,482
New Jersey	1,629	2,083,925	603,742
Pennsylvania	2,775	2,569,789	590,848
East North Central:			
Ohio	3,138	2,773,819	610,242
Indiana	1,988	1,251,652	287,883
Illinois	2,298	1,945,336	447,427
Michigan	9,804	7,657,819	1,761,096
Wisconsin	1,620	1,085,881	238,879
West North Central:			
Minnesota	1,554	1,516,147	348,711
Iowa	2,213	1,428,396	357,058
Missouri	1,695	1,592,556	366,065
North Dakota	101	39,173	11,742
South Dakota	70	30,368	8,810
Nebraska	146	89,672	24,213
Kansas	995	919,880	211,377
South Atlantic:			
Delaware	38	26,801	5,629
Maryland	586	723,738	137,502
District of Columbia	2	933	233
Virginia	427	280,228	56,048
West Virginia	1,208	607,495	121,499
North Carolina	38	29,073	6,977
South Carolina	14	4,111	1,069
Georgia	26	19,479	4,093
Florida	4	3,064	795
East South Central:			
Kentucky	515	308,406	61,268
Tennessee	311	277,344	55,177
Alabama	7	9,833	2,140
Mississippi	8	3,737	933
West South Central:			
Arkansas	228	154,351	38,544
Louisiana	(1)	145	32
Oklahoma	35	30,234	6,958
Texas	7	6,728	1,549
Mountain:			
Montana	103	80,875	20,181
Idaho	455	385,510	80,958
Wyoming	16	10,979	3,513
Colorado	613	643,678	160,828
New Mexico	14	6,202	1,488
Arizona	(1)	677	165
Utah	383	364,061	80,090
Nevada	5	3,443	758
Pacific:			
Washington	2,332	5,757,456	1,266,330
Oregon	3,931	12,022,912	1,756,203
California	876	1,538,024	316,429

[1] Reported in small fractions.

From Table I we see that there were 54,256 acres, and 61,333,509 quarts of raspberries grown in the United States in 1919. Included with the raspberries are the loganberries grown chiefly in Pacific states. The table shows that raspberries are grown largely only in the northern states and in the regions where the two native species grow commonly in the wild. New York leads in the production of this fruit in acreage, yield, and value with Michigan second.

Red, black, and hybrid berries are not segregated in this census report, but the regions in which the three types of fruit are mostly grown are well marked. Most of the red raspberries in city markets are grown in the Hudson River Valley, western New York, southern New Jersey, Puyallup Valley, Washington, and about Sebastopol, California. The most important commercial regions for the black raspberry are western New York, western Michigan, and central Maryland. The hybrid purples are more largely grown in western New York than elsewhere, but there are plantations of them wherever either reds or blacks are freely planted. Local markets are supplied very largely by home-grown fruits in all regions where raspberries can be grown.

RUNNING-OUT OF RASPBERRIES

As with other fruits, diseases and insects take tremendous toll from raspberries. Their control are subjects for entomologists and plant pathologists, and a discussion of treatment cannot be given space in this pomological treatise. There is, however, a condition known as "running-out of raspberries," that is exercising a profound influence on the whole raspberry industry in America that must be discussed. Dr. W. H. Rankin, who is studying raspberry diseases at this Station, writes as follows of running-out:

"More and more during a period of many years raspberry growers have been finding that their varieties gradually lose their vigor and are not profitable; and that the reputation of red raspberries is suffering greatly because the berries from the sickly bushes are flavorless, smaller, and scarcely palatable unless disguised with sugar and cream. Canners are unable to maintain the desired quality in their raspberry products because of this trouble.

"Somewhat similar conditions have more recently appeared in purple and black varieties. Investigations into the cause of the running-out of red varieties have established the fact that a specific contagious disease, known as mosaic, is responsible. This disease is similar or identical to

the mosaic disease that in recent years has caused great losses in potatoes, tomatoes, cucumbers, tobacco, and others. The mosaic in raspberries is not spread from plant to plant thru the air or soil, or by contact. The only known method of infection is by plant-lice or aphids which carry the infective material from diseased to healthy plants. From the time of infection all of the future growth made from the canes and roots from year to year becomes more sickly. The new canes are dwarfed and the leaves show small irregularly shaped areas of yellow-green. The leaves, also, are often blistered, curled, and wrinkled.

" Mosaic spreads in certain varieties more rapidly than in others. The Herbert and Ranere (St. Regis) are the outstanding red varieties which are usually found free from mosaic under commercial conditions. The relative rate of spread of mosaic in varieties as observed in New York is as follows: Very slow, Herbert and Ranere; slow, Erskine Park and Newman; moderately slow to rapid, Cuthbert, Columbian, Empire, Golden Queen, June, Ontario, and Owasco; rapid, Cayuga, Latham, Marlboro, Perfection, and Seneca.

" The effect of mosaic upon the plant is independent of the rate of spread in the variety. For example, plants of Herbert, Golden Queen, Owasco, Marlboro, and Columbian are severely affected once they become diseased, while plants of Perfection, Latham, Ontario, and to some extent the Cuthbert often produce vigorous canes for several years after infection.

" Removing the affected plants from one- or two-year-old plantings has proved to be a successful method of propagating mosaic-free nursery stock. The rate of spread of mosaic into experimental plantings of such stock in New York varies greatly, even on adjoining farms. It appears that conditions where the raspberry aphid is the only aphid which is common, the rate of spread from a distance into the new mosaic-free planting is very slow. In other localities where one or more species of winged aphids migrate to raspberries in large numbers from other plants there has been often a rapid increase to over fifty per cent mosaic in one year. It is unwise to interplant with crops that are known to be susceptible to mosaic. In order to control raspberry mosaic successfully in susceptible varieties more must be learned of the aphid carriers, their habits, food plants, and methods of preventing their migration to raspberries. Resistance to mosaic combined in the same variety with other commercially desirable characters may be supplied eventually by the plant breeder.

" There are two other diseases of raspberries, leaf-curl and streak, which are carried by aphids and which cause the running-out of varieties. Leaf-curl is prevalent in Cuthbert but is not often found in other varieties. The canes are more severely dwarfed than by mosaic, the leaves are crumpled and dark green, and the fruit is worthless. Streak is a disease of black varieties which resembles mosaic in its effect on the plant. The canes are

dwarfed, the leaves are slightly curled, and in two or three years the bush is so weakened that it dies. Bluish streaks usually present near the base of the canes suggested the name for this disease. The two diseases, leaf-curl and streak, have been shown to respond to roguing in the same way that mosaic does; new plantings may be made free from them but migrating aphids according to variable conditions may cause rapid reinfection.

"A fungous wilt of raspberries is commonly found in New York, particularly on black varieties. The symptoms caused by this fungous disease include various degrees of dwarfing, after which the bush eventually dies. The fungus is harbored in the soil and such crops as potatoes, tomatoes, eggplant, and salsify are affected by it and should not be rotated or interplanted with raspberries. No other preventive measures are known for wilt."

CHAPTER II

THE SYSTEMATIC BOTANY OF EDIBLE BRAMBLES

The bramble fruits, belonging to the genus Rubus, family Rosaceae, inhabit almost the whole globe, with the exception of the dry desert regions, from the arctic to the antarctic regions; in tropical countries they prefer the mountains whilst in the northern temperate regions they are especially numerous both in the Old and in the New World, and occur from the mountains to the plains, in woods and open fields, and down to the sea coast. In the temperate regions bramble fruits are not only very numerous in individuals but also in forms. After the Glacial period wide stretches of land were open to them for colonization, and it seems that through these increasing opportunities for a large reproduction the modification-power of the germ plasma received a fresh and strong stimulus. Intercrossing between different forms must have gone on simultaneously for ages, in many cases creating an almost endless number of intermediate forms filling the gaps between the more pronounced forms, which we are accustomed to call " species," and making it difficult for the systematic botanist to treat the genus in a satisfactory and intelligible way. It is of these extremely numerous transitional forms that no two studies, not only of different botanists but of any one botanist, are found to agree.

The North American Rubi, which concern us here as the parents of some of our most important small fruits, are fortunately not quite as badly mixed and variable as the European species, but nevertheless they offer an almost inexhaustible number of forms in certain groups. Besides the North American species we have to consider some South American ones and a number of species of the Old World, which are cultivated as fruit plants and have been introduced into this country. A large number of Rubi have been introduced from China during the last twenty years, among them many ornamental shrubs and vines, some of them, however, only adapted for regions with mild or almost frostless winters. Only a very few of these, those kinds which furnish or are likely to furnish small fruits, can be mentioned here.

RUBUS. Linnaeus *Sp. Pl.* 492. 1753.

Perennial plants, herbs or shrubs with erect, procumbent or trailing stems. The herbaceous plants dwarf, unarmed; the shrubby kinds glabrous or hairy, glandular, and mostly armed with fine slender more or less stiff bristles and variously shaped prickles. The stems or canes of most shrubby species of the temperate region are biennial. They reach

their full size the first year bearing large very characteristic foliage (in this state they are called " turions " or " young canes "); in the second year short lateral branches appear on them which bear flowers and fruits. The leaves on these flowering branches are always much smaller. After flowering and fruiting these two-year-old canes die and are replaced by other turions. The canes are either terete or angled, or angled and furrowed. In some species the tip of the canes bends over, touches the soil, strikes root and gives rise to a new plant. The leaves are alternate, either simple, lobed or pinnately or palmately or pedately compound, mostly deciduous or in some species wintergreen or even evergreen. Petioles and petiolules (or stalks of the leaflets) usually resemble the canes, i.e., are either glabrous, hairy, glandular, bristly or prickly. Stipules are always present at the base of the petioles.

The flowers are always stalked and borne either solitary or racemose or panicled, usually the lower flowers in the axils of leaves or leaf-like bracts. They are hermaphrodite, i.e., with perfect stamens and styles. In some cases, however, they are unisexual, dioecious or variously polygamo-dioecious. The hypanthium or the lower part of the calyx varies from plane or rotate to saucer-shaped, hemispheric, campanulate, or turbinate. Calyx-lobes or sepals valvate in bud, usually 5, but sometimes 6–8, sometimes unequal and the larger ones with a prolonged somewhat foliaceous top. Petals as many as calyx-lobes, of various size, white, rose, or pink colored. Stamens numerous, inserted densely on the margin of the hypanthium and separated from the pistils by a disk; filaments filiform or flattened, incurved in bud, erect or divaricate when mature. Pistils mostly numerous, inserted on a convex, hemispherical, or conical receptacle or carpophore rising from the center of the hypanthium and becoming either dry or fleshy; pistils laterally compressed, with the style rising from the inner margin; stigma usually subclavate or slightly 2-lobed; ovules two, collateral, one of them abortive. In the fruit the pistils are transformed into small, more or less juicy, and coherent drupelets, which either detach easily from the receptacle (or core) as a thimble or cap (as in the Raspberries), or do not detach from the fleshy core and fall off together with it (as in the Blackberries and the Dewberries), or detach singly or become more or less dry, as in some species of warmer countries. The fruits are usually red, yellow, or black, rarely green.

Key to the Subgenera

A. Small perennial herbaceous plants, with creeping stems or a creeping rootstock and annual erect short flowering shoots
  B. Flowering shoots from the rootstock
    C. Flowers dioecious (each plant with flowers either only with stamens or only with pistils).....Subgen. I. *Chamaemorus*
    CC. Flowers hermaphrodite (or stamens and pistils in each individual flower).....Subgen. V. *Cylactis*
  BB. Flowering shoots or peduncles from stems
    C. Stems without prickles.....Subgen. II. *Dalibarda*
    CC. Stems prickly
      D. Stipules free.....Subgen. III. *Chamaebatus*
      DD. Stipules attached to the petiole.....Subgen. IV. *Comaropsis*
AA. Shrubs with erect, arching, scandent, procumbent or creeping stems (canes) which persist at least for two years, unarmed or variously armed

B. Stipules free or almost, broad
C. Stipules persistent
D. Canes without flexible bristles, glandular or eglandular. . Subgen. VI. *Orobatus*
DD. Canes more or less densely beset with flexible often glandular bristles. . . . . Subgen. VII. *Dalibardastrum*
(Contains only 5 Asiatic species, of no pomological interest)
CC. Stipules fugacious, canes scandent or creeping; leaves mostly perennial; calyx-bottom (hypanthium or cupula) broadly campanulate. Subgen. VIII. *Malachobatus*
(Contains very numerous Asiatic species, many of ornamental value but none as fruit plants)
BB. Stipules attached to the petiole, narrowly linear or subulate
C. Canes unarmed, persisting for more than two years; leaves simple, palmately lobate. . . . . Subgen. IX. *Anoplobatus*
CC. Canes prickly
D. Canes persisting, leaves leathery, evergreen, inflorescence amply panicled; drupelets not much cohering. . . . . Subgen. XI. *Lampobatus*
(Contains about 10 species of the Tropics of the Old World of no pomological interest)
DD. Canes biennial, dying back after the second year
E. Drupelets cohering as a cap or a thimble and detaching easily from the receptacle (core). . . . . Subgen. X. *Idaeobatus*
EE. Drupelets cohering also with the core or receptacle. Subgen. XII. *Eubatus*

Subgenus I. **Chamaemorus.** Focke *Abh. Nat. Ver. Bremen* **4**:145. 1874; Focke *Spec. Rub.* **1**:12. 1910.

Small perennials, with entire reniform leaves and dioecious flowers. One species:

Rubus chamaemorus. Linnaeus *Sp. Pl.* 494. 1753; Card *Bush-Fr.* 308, fig. 52. 1898; Focke *Spec. Rub.* **1**:12. 1910; Gray *New Man.* 7th Ed. 487. 1911; Rydberg *N. Am. Fl.* **22**:435. 1913; Bailey *Stand. Cyc. Hort.* **5**:3023, fig. 1916.

Cloudberry, Bakeberry, Bakeapple berry, Yellow berry, Salmonberry, Molka.— A small herbaceous perennial with creeping rootstock; stems annual, erect, 10–30 cm high, in the lower part with scales, usually with 2, but also 1–4, leaves in the upper part, more or less pubescent and with one terminal flower. Leaves roundish, with a reniform base, and 5–7 short, round, crenate lobes and as many palmately disposed mainveins, somewhat falted and rugose, glabrous and dark green above, paler and somewhat pubescent beneath, 2–6 cm long. Petioles usually shorter than the blades; stipules rather broad, obovate, obtuse or acute, attached to the stem. Flowers solitary, by abortion dioecious, the stamens in the female flowers without anthers, and the styles in the male flowers short. Peduncles straight without bracts, somewhat pubescent, exceeding the petiole of the last leaf. Calyx with ovate pubescent or hirsute lobes, persistent and enlarged on the fruit. Petals white, obovate, rather large, obtuse or emarginate. Fruits erect, globular, red, changing to yellow or golden when ripe, drupelets large, globular, cohering.

Northern Hemisphere; in arctic and subarctic Europe, Asia, North America. For America from Greenland and Alaska as far south as Oregon, and Maine and New Hampshire in the East; usually in peaty, swampy soil, often among sphagnum moss. In all northern countries much esteemed

as a most delicious fruit and everywhere gathered in great quantity. Four-parted flowers, i. e., with 4 calyx-lobes and 4 petals, instead of 5, are not rare in this species.

Subgenus II. **Dalibarda** Linn. Focke *Abh. Nat. Ver. Bremen* 4:145. 1874; Focke *Spec. Rub.* 1:13. 1910.

Small perennial plants with slender creeping stems and free stipules; calyx with a short almost flat base; pistils usually few, 5–20.

Of the 5 species composing this subgenus, 3 are North American, 1 is from central China and the eastern Himalaya, and 1 from Tasmania. None of them has any pomological importance and none need be described in this text.

KEY TO THE AMERICAN SPECIES

A. Leaves simple
B. Leaves roundish cordate, crenate; fruits dry ..... *R. dalibarda*
BB. Leaves trilobed, sharply dentate; fruits somewhat succulent, pulpy.. *R. lasiococcus*
AA. Leaves pedately 5-foliolate..... *R. pedatus*

Subgenus III. **Chamaebatus**. Focke *Abh. Nat. Ver. Bremen* 4:145, 156. 1874; Focke *Spec. Rub.* 1:17. 1910.

Small perennials with slender creeping stems armed with slender prickles; leaves roundish cordate or lobed.

Of the 5 species belonging here, 1 is North American, 1 Mexican, the others are Asiatic. None of them has any great importance for the pomologist; this is also true of the North American species, *R. nivalis*, which is, therefore, not further discussed.

Subgenus IV. **Comaropsis**. Focke *Abh. Nat. Ver. Bremen* 4:145. 1874; Focke *Spec. Rub.* 1:22. 1910.

Small perennials with creeping prickly stems, with the stipules adnate to the petioles. There are only two species from southern Chile, neither of which are of interest to pomologists.

Subgenus V. **Cylactis** Raf. Focke *Abh. Nat. Ver. Bremen* 4:142, 146. 1874; Focke *Spec. Rub.* 1:23. 1910.

Perennials with the annual flowering shoots from the rootstock, unarmed or prickly. Leaves simple, or 3–5 foliolate; stipules free or almost, large, linear or obtus

To this subgenus belong about 15 species, several of them are American, the others are European and Asiatic. Some of them bear edible fruits and one is cultivated for its fruit.

KEY TO THE SPECIES DESCRIBED

A. Leaves simple, cordate or reniform; petals rose colored..... *R. stellatus*
AA. Leaves compound
B. Leaves 3-foliolate

C. Low perennials, 3–20 cm high; petals rose colored
D. Petals broadly obovate, 7–10 mm long; stems 1–3 flowered; leaflets usually rhombic and acute.....*R. arcticus*
DD. Petals narrower, oblanceolate, 10–13 mm long, attenuated into a distinct yellowish claw; stems 1-flowered; leaflets more obtuse.....*R. acaulis*
CC. Slender perennial, 30–90 cm high, petals white; flowers small..*R. pubescens*
BB. Leaves pinnate; stems, petioles and midribs prickly.....*R. xanthocarpus*

Rubus stellatus. Smith *Pl. Ic.* (Ined. Pl.) 64. 1791; Card *Bush-Fr.* 310. 1898; Focke *Spec. Rub.* 1:25. 1910; Rydberg *N. Am. Fl.* 22:435. 1913; Bailey *Stand. Cyc. Hort.* 5:3024. 1916.

Small herbaceous perennial with creeping rootstock and erect flowering stems, 10–20 cm high with about 2–5 leaves or more, slightly pubescent or glabrous. Petioles longer than the blade, slender; stipules ovoid, obtuse or pointed; leaves simple, cordate or reniform at the base, broader than long, the lower ones almost entire, the others deeply 3-lobed, the lobes obtuse or roundish, doubly crenate or serrate, glabrate at length, 3–6 cm wide. Flowers solitary, terminal, peduncles overtopping the leaves, often with 6–8 sepals and petals. Calyx finely puberulous, lobes narrowly lanceolate, acuminate; petals obovate or oblanceolate, long clawed, rose colored, exceeding the calyx lobes; stamens numerous with dilated filaments. Fruit globose with 20–25 drupelets, glabrous; putamen smooth; calyx reflexed on the fruit.

Eastern Asia; Kamtschatka, *western North America;* Aleutian Isles, Alaska, Yukon. Of little importance as a fruit-bearing plant.

Rubus arcticus. Linnaeus *Sp. Pl.* 494. 1753; Britton & Brown *Ill. Fl.* 2:200, fig. 1893. 1897; Focke *Spec. Rub.* 1:24. 1910; Rydberg *N. Am. Fl.* 22:437. 1913; Bailey *Stand. Cyc. Hort.* 5:3023. 1916.

Arctic Raspberry.— Herbaceous perennial, with a slender creeping rootstock. Stems 5–20 cm high, finely pubescent, 2- to 6-leaved; stipules large, obovate, rounded; petioles 2–4 cm long, finely pubescent; leaflets 3, simply or doubly toothed, lateral ones sessile, broadly obovate-rounded, on the upper leaves more acute, terminal ones short stalked, more or less acute, especially the upper ones. Flowers 1–3, polygamo-dioecious, 5- to 10-parted; sepals lanceolate, acute, finely pubescent; petals obovate, entire or emarginate, 7–10 mm long, rose-red. Fruit globose, dark red, fragrant, edible.

Northern Europe, Asia, and North America; from Labrador to the Canadian Rocky Mountains in the New World. The fruit is smaller than that of *R. chamaemorus;* when full grown and ripe it is not unlike that of the raspberry.

Rubus acaulis. Michaux *Fl. Bor. Am.* 1:298. 1803; Focke *Spec. Rub.* 1:24. 1910; Rydberg *N. Am. Fl.* 22:437. 1913.

R. arcticus. Card *Bush-Fr.* 312, fig. 54. 1898.

Similar to *R. arcticus* in habit. Stems 3–12 cm high, slightly pubescent or glabrous, with 2–4 leaves, usually 1-flowered. Petioles 2–6 cm long, leaflets all somewhat stalked, mostly rounded or obtuse at the top, only the upper ones occasionally somewhat more

acute; lateral leaflets sometimes 2-cleft, terminal ones more or less rhombic-obovate with a petiolule 5–7 mm long. Calyx-lobes narrowly lanceolate with a long point; petals oblanceolate attenuated into a long, yellowish claw, mostly 10–13 mm long, rose colored.

Arctic and subarctic North America; from Alaska to Labrador, northern Minnesota and Wyoming; perhaps also in the Old World. Differs from *R. arcticus* chiefly in the more obtuse leaves, larger flowers, and narrower sepals and by clawed petals. The two species are, however, very close and not always easily separable. The fruits are edible but are not of great value.

Rubus pubescens. Rafin. *Med. Repos.* **3**:2, 233. 1811; Rydberg *N. Am. Fl.* **22**:438. 1913; Bailey *Stand. Cyc. Hort.* **5**:3023. 1916.

R. americanus. Britton *Mem. Torrey Bot. Club* **5**:185. 1894; Card *Bush-Fr.* 314, fig. 56. 1898; Focke *Spec. Rub.* **1**:25. 1910.

R. saxatilis var. *americanus.* Persoon *Syn.* **2**:52. 1806.

Dwarf Raspberry.— A slender perennial or subshrub, 30–90 cm high, sterile stems flagelliform, procumbent, unarmed, flowering the following year; annual flowering stems erect, weak, unarmed, and glabrous. Leaves 3-foliolate, on long slender petioles; stipules obovate, obtuse; leaflets thin, all sessile or short stalked, the lower ones obliquely ovate-lanceolate, the terminal one longer, all acute, all with mostly simple ovate teeth. Flowers solitary or few together on slender pedicels, small; calyx-lobes ovate, acute, reflexed; petals white, scarcely longer. Fruit red, with several drupelets.

North America; from Newfoundland to British Columbia, south to Montana, Colorado, Iowa, and New Jersey; in swamps and damp woods. A very weak and thin-leaved plant; the fruit is of little importance. Hybrids have been recorded with *R. arcticus*, *R. acaulis*, and lately with *R. hispidus*. A near ally of this species is *R. japonicus* (Maxim.) Focke from the mountain forests in Japan.

R. saxatilis Linn. is another species of this relationship, with herbaceous stems, small flowers, and red drupelets, easily segregating, however; it occurs through northern Asia from Altai westward to Europe, and is reported from southern Greenland.

Rubus xanthocarpus. Bureau & Franchet in Moret *Jour. Bot.* **5**:46. 1891; Focke *Spec. Rub.* **1**:29. 1910; Bailey *Stand. Cyc. Hort.* **5**:3024. 1916.

Perennial or subshrub with annual stems, i.e., dying down in the winter, 20–80 cm high or rarely more, pilose and weak-spiny. Leaves pinnately, 3- to 5-foliolate. Leaflets ovate, acute or obtuse, unequally serrate, terminal leaflet much larger, 6–10 cm long, acute; petioles and midveins with recurved prickles. Flowers 1–2, terminal, mostly 6-parted and rather large; peduncles and calyx prickly; petals narrow, white. Fruit orange-yellow, with numerous drupelets, fragrant, somewhat like a raspberry, edible.

Central China; in the Provinces Kansu, Szechwan, and Yunnan. It is occasionally grown for its fruit and was introduced by the United States Department of Agriculture in 1898. It is reported to be hardy as far north as Minnesota.

Subgenus VI. **Orobatus.** Focke in Engler & Prantl *Nat. Pflanzenfam.* **3**:31. 1888; Focke *Spec. Rub.* **1**:30. 1910; Ibid. **3**:18. 1914. Not Oreobatus Rydberg *Bul. Torrey Bot. Club* **30**:274. 1903.

Prickly shrubs with woody, perennial, erect or more or less climbing stems. Leaves simple or 3- or rarely 5-foliolate, with mostly large, broad, dentate, persistent stipules. Inflorescence loose, few flowered; flowers usually large with rose-colored petals. Fruits large, not always juicy, with numerous often whitish tomentose drupelets.

About 20 species, almost all natives of the Andes of Tropical South America at elevations from 3600–12000 feet, one species is a native of the Costa Rica mountains and one is known from the Philippine Islands. So far only the following species has been introduced as a fruit plant:

Rubus macrocarpus. Bentham *Pl. Hartweg.* 129. 1844; Focke *Spec. Rub.* **1**:37. 1910; Popenoe *Jour. Hered.* **11**:195, fig. 1920; *U. S. D. A. Bur. Pl. Indust. Invent.* 13, 65, Pl. III. 1923.

Columbian Berry.— Canes erect, recurving at the tip, or half-climbing, about 3 m long, stout, light green, villous-tomentose and with reddish glandular hairs and with short, slightly recurved prickles. Leaves trifoliolate or simple and often lobed, large and coarse; leaflets stalked, thick, ovate or broadly elliptic, acute, serrate, velvety pilose on both sides, 8–15 cm long; stipules large, subcordate, villous, 25 mm long; petioles 15 cm long. Flowers single or 3–6 from lateral branches, pedicels 8–12 cm long, stout, like the calyx pubescent, glandular and prickly; calyx-lobes large, deltoid. pointed, exceeding the obovate light rosy-purple petals; pistils numerous, densely villous. Fruits very large, up to 55 mm long, elongate, light crimson to wine colored; drupelets relatively small, rather loosely cohering; core succulent, extending nearly to the top of the fruit and at maturity often separating from the drupelets.

South America; in the Andes of Colombia and Ecuador, from 2500–3500 feet, in a moist cool region. The fruit is said to be " rather firm in texture, not as juicy as most of the cultivated blackberries, and of a pleasant subacid flavor (quite acid until the fruit is fully ripe) perhaps suggesting that of the loganberry more than that of the cultivated blackberries." (Popenoe l. c.)

Subgenus IX. **Anoplobatus.** Focke *Abh. Nat. Ver. Bremen* **4**:143, 146. 1874; Focke *Spec. Rub.* **2**:123. 1911.

Rubacer and Oreobatus. Rydberg *Bul. Torrey Bot. Club* **30**:274. 1903.

Erect unarmed shrubs with perennial stems, increasing in thickness with age. Leaves simple, lobed; stipules adnate to the petiole. Flowers large, showy, white or pink. Fruit scarcely juicy, finally getting dry.

Most of the species of this subgenus are North American, two are natives of Japan. They are perhaps of more ornamental value than they will ever be as fruit plants.

KEY TO THE SPECIES DESCRIBED

A. Leaves large, about 10–30 cm wide; inflorescence densely beset with stalked glands
B. Petals rose colored ..... *R. odoratus*
BB. Petals white ..... *R. parviflorus*
AA. Leaves much smaller; inflorescence pubescent not densely glandular. . *R. deliciosus*

Rubus odoratus. Linnaeus *Sp. Pl.* 494. 1753; Card *Bush-Fr.* 304, fig. 49. 1898; Gray *New Man.* 7th Ed. 487. 1911; Focke *Spec. Rub.* **2**:123. 1911; Bailey *Stand. Cyc. Hort.* **5**:3024. 1916; Bailey *Gent. Herb.* **1**:146. 1923.

Rubacer odoratum. Rydberg *Bul. Torrey Bot. Club* **30**:274. 1903; Rydberg *N. Am. Fl.* **22**:425. 1913.

Flowering Raspberry.— Erect shrub, with perennial stems, 1–3 m high, bushy. Stems with pale brown flaky peeling bark, in the young parts more or less villous and densely glandular-hispid. Leaves large, simple, maple-like on long stalks, cordate at base, roundish in outline, 5- to 7-lobed, rather firm, green and sparingly hairy on both sides, lobes acute, lobulate, fine and sharply doubly toothed, the middle lobe the largest, 10–30 cm wide. Petioles roundish, glandular-hispid, about as long as the blades, stipules acute. Flowers numerous, subcorymbose, fragrant, 4–5 cm across; pedicels and calyxes densely beset with stalked brownish glands; calyx-lobes ovate, caudate or suddenly contracted into a long narrow point; petals roundish, deep rose colored; stamens very numerous, shorter than the petals, pistils numerous, tomentose. Fruits red, flat, round, tasteless.

Eastern North America; from Nova Scotia to the Saskatchewan River, south to Michigan and in the mountains as far as Tennessee and Georgia, chiefly in half shady places, in glens, on wet rocks, woods, and roadsides. Not much of a fruit plant, but a very ornamental shrub; introduced into Europe as early as 1770 and now commonly cultivated. It flowers from June to September.

A rather constant species. The following varieties are worth noting:

Var. **columbianus.** Millspaugh *W. Va. Sta. Bul.* **24**:355. 1892. *Rubus columbianus,* Rydberg in Britton *Man.* 495. 1901; *Rubacer columbianus,* Rydberg *N. Am. Fl.* **22**:426. 1913.

Leaves deeper cut and the lobes lanceolate, acuminate, incised, dentate or doubly toothed.

Western Virginia.

Var. **albidus.** Bailey *Stand. Cyc. Hort.* **5**:3024. 1916.

Flowers whitish and bark lighter colored.

R. odoratus has been crossed with *R. idaeus,* and the hybrid is named:

Rubus nobilis. Regel *Gartenflora* **6**:86. 1857.

Stems tomentose. Leaves 3-foliolate; leaflets oblong, grayish tomentose underneath. Inflorescence many flowered, subcorymbose; peduncles pubescent and glanduliferous; flowers similar to those of *R. odoratus*, but smaller, petals of the same color.

The plant is said to be sterile; it is rare in cultivation. It was raised by C. de Vos at Hazerswoude near Boskoop in Holland about 1855.

Rubus parviflorus. Nuttall *Gen.* **1**:308. 1818; Card *Bush-Fr.* 305, fig. 50. 1898; Gray *New Man.* 7th Ed. 487. 1911; Bailey *Stand. Cyc. Hort.* **5**:3024. 1916; Bailey *Gent. Herb.* **1**:146. 1923.

R. nutkanus Moc. Seringe in *D. C. Prodr.* **2**:566. 1825; Focke *Spec. Rub.* **2**:124. 1911.

Rubacer parviflorum. Rydberg *Bul. Torrey Bot. Club* **30**:274. 1903; Rydberg *N. Am. Fl.* **22**:426. 1913.

Rocky Mountain Thimbleberry, Salmonberry.— Erect shrub very similar to *R. odoratus*, up to 8 feet high; young shoots downy and more or less glandular. Leaves similar to those of *R. odoratus*, mostly 5-lobed, more reniform at the base, the lobes triangular, pointed, the middle one somewhat longer, irregularly toothed, pubescent on both sides, especially underneath. Flowers 3–7, large, showy, pure white; pedicel and calyx densely tomentose and glandular; calyx-lobes ovate suddenly contracted into a long narrow point; petals roundish oval, longer than the calyx-lobes. Fruit large, 15–20 mm across, red.

Central and western North America; from Wisconsin to the West as far as British Columbia in the North, and south to California, New Mexico, and northern Mexico.

The name *parviflorus* is very inappropriate for this species, as it has large flowers, larger than those of *R. odoratus*, its next ally and geographical sister species. Var. *fraseriana*, T. K. Henry *Torreya* **18**:54, 1918, is a form with laciniate and dentate basal part of the petals. Besides, there occur forms with deeper cut or laciniate leaves.

Var. **velutinus** H. & A. n. comb.-*R. velutinus* H. & A. *Bot. Beech. Voy.* 140. 1832; not *R. velutinus*, Vest. 1823; *Rubacer tomentosum*, Rydberg *Bul. Torrey Bot. Club* **30**:274. 1903; Rydberg *N. Am. Fl.* **22**:426. 1913.

Leaves densely velvety pubescent at the back; calyx sometimes less or not glandular.

Central California to British Columbia, along the coast.

Rubus robustus Hort. Petrob. is the name of a hybrid between *R. odoratus* and *R. parviflorus* raised at Petersburg Botanical Garden and later by Mr. Fraser in Ucluelet, British Columbia; *Gard. Chron.* 3rd Ser. **73**:51, fig. 24. 1923.

Rubus deliciosus. Torrey *Ann. Lyc. N. Y.* **2**:196. 1827; Card *Bush-Fr.* 307. 1898; Focke *Spec. Rub.* **2**:125. 1911; Bailey *Stand. Cyc. Hort.* **5**:3024. 1916; Bailey *Gent. Herb.* **1**:146. 1923.

R. Roezli. Regel *Gartenflora* **24**:227. 1875.

Oreobatus deliciosus. Rydberg *Bul. Torrey Bot. Club* **30**:275. 1903. Rydberg *N. Am. Fl.* **22**:427. 1913.

Rocky Mountain Flowering Raspberry.— Erect shrub, 1–2.5 m high, branches perennial, slightly arching at the top; young stems pale reddish brown, downy; bark peeling off later on. Leaves simple, roundish cordate, wider than long, with 3–5–7 short, rounded lobes and small, ovate, sharp teeth, 2–6 cm wide; green on both sides, sparingly hairy above but soon glabrous, longer so on the veins beneath and often finely glandular pruinose. Petioles and the lanceolate-acuminate stipules downy. Flowering branches lateral, with similar but smaller leaves; flowers large and showy, rose-like, 4–6 cm across or more, white, solitary on slender, but firm, downy peduncles. Calyx-lobes ovate, cuspidate, entire or toothed, pubescent and more or less glandular; petals roundish or broadly obovate, stamens numerous; pistils pubescent. Fruit half-round, surrounded by the appressed calyx; dark purple; drupelets numerous, almost dry.

Southwestern North America; in the mountains of Colorado and probably also of Arizona and New Mexico. A desirable, free-flowering, and very hardy ornamental shrub, but not a fruit plant; the name "*deliciosus*" was probably given for its profusely borne, fine, rose-like flowers. Contrary to other Rubi this species is difficult to propagate. It does not sucker, cuttings strike but slowly, and layers often take as long as a year before they are properly rooted. There are several varieties in cultivation, the most desirable one has flowers almost twice as large as those of the more common kind. In habit and foliage *R. deliciosus* resembles some kinds of currants more than a bramble. There are three or possibly more related species, all natives of southwestern United States, Mexico, and Guatemala.

Subgenus X. **Idaeobatus.** Focke *Abh. Nat. Ver. Bremen* **4**:143, 147. 1874; Focke *Spec. Rub.* **2**:128. 1911; Ibid. **3**:260. 1914.

Raspberries.— Canes usually biennial, erect, arching or decurving at the top and sometimes rooting from the tip, in some species scandent or prostrate; usually prickly, sometimes bristly or glandular bristly. Leaves in some species simple and lobed, in others odd-pinnately compound, in a few 5-foliolate digitate or pedate; petioles with adnate narrow stipules. Flowers and inflorescences various; calyx-lobes almost equal, petals often fugacious. Fruit composed of many cohering drupelets, dissolving at maturity from the core as a thimble or a cap.

This subgenus is composed of numerous species inhabiting all the five continents. They are especially numerous in the northern hemisphere and chiefly in the temperate and subtropical regions of Asia from the Himalaya to Japan, western and central China being extremely rich in species. Some species are very important fruit plants and are cultivated largely as raspberries; others may be useful for the plant breeder and many are ornamental garden plants.

KEY TO THE SERIES OF IDAEOBATUS

A. Leaves simple, lobed.....Series 1: *Corchorifolii*
AA. Leaves compound
B. Flowers solitary or a few loosely and distantly set from each other
C. Leaves of the new canes (turions) 3-foliolate.....Series 2: *Spectabiles*
CC. Leaves of the new canes pinnate
D. Leaflets narrow, pointed, lateral veins close and numerous; fruits with very numerous drupelets.....Series 3: *Rosaefolii*
DD Leaflets broader, veins more remote and less numerous; drupelets less numerous.....Series 4: *Pungentes*
BB. Flowers numerous, often densely panicled or fascicled
C. Flowers pink, usually small and petals scarcely as long as the calyx-lobes.....Series 5: *Orientales*
CC. Flowers white or whitish, petals often fugacious.
D. Canes densely bristly, climbing; leaves 3-foliolate.....Series 6: *Elliptici*
DD. Canes not so
E. Canes erect and arching or scandent or prostrate, often rooting at the tip, mostly glabrous, with dense glaucous bloom; leaves 3-foliolate or digitately or pedately 5-foliolate.....Series 7: *Occidentales*
EE. Canes erect or nodding at the top, but not rooting at the tip; leaves pinnately 3- to 5-foliolate.....Series 8: *Idaei*

Series 1. **Corchorifolii.** Focke *Spec. Rub.* **2**:129. 1911.

About 15 species known, all natives of China and Japan.

A. Leaves small; flowers solitary, nodding.....*Rubus palmatus*
AA. Leaves larger, 8–30 cm wide; flowers not nodding
B. Canes furrowed; prickles small; leaves 3- to 5-lobed.....*R. crataegifolius*
BB. Canes terete, finely downy when young; prickles with a broad base; leaves 3-lobed.....*R. corchorifolius*

Rubus palmatus. Thunberg *Fl. Jap.* 217. 1784; *Ic. Pl. Jap. Dec.* 4, Pl. 6; Focke *Spec. Rub.* **2**:132. 1911; Bailey *Stand. Cyc. Hort.* **5**:3026. 1916; Bailey *Gent. Herb.* **1**:146. 1923.

R. microphyllus. Linnaeus fil. *Suppl. Syst. Veg.* 263. 1781; Card *Bush-Fr.* 311. 1898.

Stoloniferous shrub with erect, arching biennial canes, 1–1.5 m high; canes slightly angled, glabrous, more or less armed with straight prickles. Petioles 1–3 cm long or more, pubescent, with hooked prickles; stipules small, linear. Leaves from a cordate base, deeply 3- to 5-lobed, lobes acuminate, lobately irregularly toothed, terminal lobe the longest, puberulous on the veins, glabrous at last. Flowers solitary from short lateral shoots, nodding, 25–30 cm across; peduncles pubescent, almost unarmed. Calyx-lobes lanceolate, pubescent; petals longer, narrowly elliptical, white. Stamens and pistils numerous. Fruit similar to that of *R. idaeus*, yellowish, juicy, and edible.

Japan, China; not quite hardy in the East, but does well on the Pacific Coast. From this species the cultivated variety " Mayberry " of Luther Burbank was derived as a cross with the Cuthbert raspberry.

R. crataegifolius. Bunge *Mem. Acad. St. Petersb.* **2**:98. 1835; Card *Bush-Fr.* 310. 1898; Focke *Spec. Rub.* **2**:137. 1911; Bailey *Stand. Cyc. Hort.* **5**:3026. 1916; Bailey *Gent. Herb.* **1**:147. 1923.

Canes erect, arching and branched at the top, 1–2 m high, black or red brown, furrowed and armed with a few small straight prickles. Leaves green, glabrate or downy beneath, simple, cordate-ovate, acute, 3- to 5-lobed and palmately veined, lobes acute, the middle one larger, contracted at its base, the margins coarsely unequally serrate and notched; petioles and midveins beneath pubescent and armed with scattered hooked prickles; stipules linear-lanceolate. Flowering branches pubescent, leaves often only 3-lobed; flowers small, few or several, fascicled or clustered in a short raceme, short stalked, a few lower ones sometimes axillar and longer stalked; bracts lanceolate; calyx more or less pubescent, lobes ovate-deltoid, acuminate; petals white, about as long, elliptic, clawed, crimped at the margins, spreading in the open flower; stamens in one row; pistils numerous, glabrous. Fruit half round, shining deep or black blood red, edible.

Northern China, Korea, and Japan; a robust plant with a spreading rootstock, very hardy. On good soil the leaves of the turions reach 20–30 cm in diameter. Only the leaves on flowering shoots can be compared with Crataegus; those of the turions resemble more the leaves of the maple. Although the fruit is edible, it has been little cultivated as a fruit plant, but has been recommended for planting on loose rough banks, where the strong spreading rootstocks help to hold the soil.

Rubus corchorifolius. Linnaeus fil. *Suppl. Syst. Veget.* 263. 1781; Focke *Spec. Rub.* **2**:131. 1911; Bailey *Stand. Cyc. Hort.* **5**:3026. 1916.

Spreading by suckers, 1.5–2.5 m high, canes terete, finely downy and with broad-based straight prickles, branching near the top. Leaves simple, purplish when young, cordate-ovate, 8–15 cm long or more, those of the new canes deeply 3-lobed, dull green above, pubescent beneath, irregularly toothed; petiole much shorter than the blade, prickly as well as the midveins. Flowers solitary or few together on short lateral twigs, white. Fruit large, bright red, said to be delicious and of a vinous flavor.

Japan, China; a rather variable species. Introduced by E. H. Wilson, in 1907. It is cultivated in England; perhaps also in the United States.

Series 2. **Spectabiles.** Focke *Spec. Rub.* **2**:142. 1911; *Ibid.* **3**:260. 1914.

Canes erect or procumbent. Leaves mostly ternate; flowering branches usually short; flowers mostly large and showy.

Six species, natives of the Sandwich Islands and of the Pacific Coast of North America.

A. Erect shrubs; canes smooth, only with a few prickles near the base; flowers pink or rose colored
  B. Leaves and calyx glabrate or sparingly pubescent.....*R. spectabilis*
  BB. Leaves and calyx densely tomentose beneath.....*R. franciscanus*
AA. Procumbent shrubs; canes tomentose and with fine bristly prickles; flowers pale....
R. macraei

Rubus spectabilis. Pursh *Fl. Am. Sept.* 1:348. 1814; Card *Bush-Fr.* 322, fig. 60. 1898; Focke *Spec. Rub.* 2:142. 1911; Rydberg *N. Am. Fl.* 22:440. 1913; Bailey *Stand. Cyc. Hort.* 5:3026. 1916; Bailey *Gent. Herb.* 1:147. 1923.

Salmonberry.— Erect shrub, reaching 2–5 m, freely suckering; new canes armed with fine prickles at the base, smooth for the rest, terete. Leaves 3-foliolate; stipules linear or subulate; petiole slender, glabrous, rarely with a few fine prickles; lateral leaflets sessile, obliquely ovate, acute, terminal one larger, ovate or rhomboid, acuminate, round or subcordate at the base, 4–10 cm long, incisedly double serrate, all rather thin, glabrous and green on both sides. Flowers showy, usually solitary or 2–3, terminal on small sideshoots; peduncles slender, glabrous, with or without a small bract below the middle. Calyx-lobes ovate, acute, pubescent with adpressed hairs. Petals elliptic, pointed, rose colored, twice as long as the calyx-lobes. Stamens and styles numerous. Fruit large, ovoid, orange-yellow, or dark wine-red, 15–20 mm long and 12–15 mm across, edible.

Western North America; from Alaska south to Idaho and California, common in wet woods, along streams, etc. This plant is hardy in England and many parts of Europe, where it is grown as an ornamental shrub. It is hardy at Geneva, but it does not reach more than about 3 feet and seldom flowers. It is not very productive even in its native home, although the fruits are handsome and agreeable, but perhaps it may be used in cross-fertilization with other hardier and more productive kinds. The orange-yellow or salmon-colored berries are said to be the better flavored ones, while the dark wine-colored berries have a bitter after taste. The two kinds grow together and are indistinguishable, except by the color of the fruit.

Hybrids are recorded with *R. idaeus*, *R. idaeus* var. *viburnifolius* and with *R. idaeus* var. *canadensis*. A closely allied species is the following:

Rubus franciscanus. Rydberg *N. Am. Fl.* 22:441. 1913.

Rubus spectabilis var. *Menziesii.* Watson *Bot. Cal.* 1:172. 1876; not *R. menziesii*, Hooker. 1832.

Very similar in habit and structure to *R. spectabilis*, but the stems hairy at first, the leaves of a firmer texture, hairy above and densely white or grayish tomentose underneath; flowering branches, petioles, and peduncles equally hirsute; calyx-lobes densely silky from long adpressed shining hairs.

Central California to southern Oregon; chiefly in the Redwood belt. This is quite a distinct and very attractive species, but sometimes intermediate forms are encountered.

Rubus macraei. Gray *U. S. Expl. Exp.* 505, Pl. 57. 1858; Focke *Spec. Rub.* 2:143. 1911; Rock *Jour. Hered.* 2:147. 1921; *U. S. D. A. Bur. Pl. Indust. Invent.* 67, 87, Pl. VI. 1923.

Akalaberry, Hawaian Giant Raspberry.— Stems procumbent, tomentose or pubescent and with fine bristly prickles. Stipules subulate. Leaves 3-foliolate, those of the flowering

branches 3-lobate, of a firm, almost coriaceous texture, glabrous above and softly grayish tomentose underneath, irregularly and coarsely doubly incised serrate. Flowering branches short, apparently only at the end of the canes, with one-stalked flower; peduncle tomentose, unarmed, at the middle with a large, ovate-deltoid leafy bract; calyx unarmed, lobes oblong, lobately dentate; petals almost as long as the calyx-lobes, obovate, often emarginate, pale. Fruit very large, as much as 5 cm across, roundish or flattened, varying from orange-green to purplish or black, with numerous large, very juicy drupelets, containing small seeds.

Hawaii; at about 4000–6000 feet on Mauna Kena, where "the atmosphere is always cool and the nights even cold, frost being not uncommon in the winter," usually fogs prevail during the greater part of the days. Seems to be allied to *R. spectabilis*. Native name Akala. It was introduced by the United States Department of Agriculture in 1921 under the name of the Hawaian giant raspberry. This Akala berry would be best adapted to a locality with mild winters and fogs, perhaps along the Pacific Coast.

Series 3. **Rosaefolii.** Focke *Spec. Rub.* **2**:148. 1911; *Ibid.* **3**:262. 1914.

Shrubs, but one species a perennial herb or subshrub; canes variously, erect, scandent or creeping. Leaves mostly pinnate or ternate; leaflets mostly acute, sharply doubly incisedly toothed. Flowers terminal or axillar, generally few, solitary or loosely panicled; petals white; stamens numerous, pistils small, very numerous; core soft at maturity of the fruit.

About 11 species, natives of subtropical and tropical eastern Asia and the Sunda Islands, one species of South Africa and Australia.

A. Stems 30–50 cm high, coming up annually from the root and flowering; leaflets lanceolate, acuminate ..... *R. illecebrosus*

AA. Stems higher, biennial or perennial

B. Stems often climbing, leaflets pubescent on both sides ..... *R. rosaefolius*

BB. Stems not climbing; leaflets glabrous ..... *R. probus*

Rubus illecebrosus. Focke *Abh. Nat. Ver. Bremen* **16**:278. 1899; Focke *Spec. Rub.* **2**:152. 1911; Bailey *Stand. Cyc. Hort.* **5**:3029. 1916; Bailey *Gent. Herb.* **1**:149. 1923.

R. sorbifolius Hort., not Maxim.

R. rosaefolius. Card *Bush-Fr.* 149, fig. 28, not text 322. 1898.

Strawberry Raspberry.— Perennial or subshrub; stems erect, 30–50 cm high, green, angular, glabrous, with scattered deltoid prickles; petioles, petiolules, midveins and peduncles equally with rather numerous similar prickles. Petioles about 5–6 cm long; stipules lanceolate or subulate, long pointed; leaves pinnately 5- to 7-foliolate, leaflets thin, green and with a few scattered hairs on both sides, oblong-lanceolate-acuminate and sharply doubly toothed, 7–9 cm long, lateral ones shortly stalked, the lowest and the terminal ones the longest. Flowers terminal and axillary, large, 4–5 cm across, 5–6 merous; peduncle 4–7 cm long, erect; calyx finely pubescent, smooth or with a few prickles, lobes broadly ovate, suddenly contracted into a long often foliaceous point. Petals broadly obovate, obtuse or emarginate, white; stamens very numerous, filaments flattened; pistils very numerous, glabrous. Fruit red, large, of the size of a strawberry.

Japan; in the mountains on Fudji-yama. Quite hardy at Geneva, but not very productive nor is the fruit of high quality but is said to be agreeable when cooked.

Rubus rosaefolius. Smith *Pl. Ic.* (Ined. Pl.) 60. 1791; Card *Bush-Fr.* 322, fig. 28. 1898; Focke *Spec. Rub.* **2**:153. 1911; Rydberg *N. Am. Fl.* **22**:153. 1913; Bailey *Stand. Cyc. Hort.* **5**:3028. 1916; Bailey *Gent. Herb.* **1**:149. 1923.

Erect evergreen shrub, 2–2.5 m high, in temperate climes lower, stems erect or clambering, branching at the top, loosely hairy and glandular and with scattered recurved prickles. Leaves pinnately 5- to 7-foliolate, rarely also 9–11 leaflets, the uppermost 3-foliolate or simple; petioles hairy, prickly; stipules linear; leaflets thin, ovate or oblong-lanceolate, acuminate, large and regularly doubly serrate, light green and hairy on both sides, 5–7 cm long. Flowers terminal or axillary in few-flowered cymes, about 4 cm across; pedicels hairy, sometimes with a few stalked glands or fine prickles; calyx hairy, lobes ovate-lanceolate, caudate; petals roundish obovate, white; stamens numerous, with flattened filaments. Fruits rather large, thimble shaped, 26–35 mm across, with very numerous small drupelets, glabrous, bright red or orange.

Southern and eastern Asia, Philippine Islands, New Guinea, eastern Australia; now subspontaneous in many tropical and subtropical countries, for instance in South Africa, Chile, Brazil, and the West Indies. "In Porto Rico it is completely established. In the Aibonito district the fruit is gathered by children and sold to travelers along the Military Road. The fruit is bright red and attractive, although not of high quality." (Bailey l.c.)

R. rosaefolius var. *coronarius.* Sims *Bot. Mag.* Pl. 1283. 1816. This is a double-flowered form often planted in the tropics as an ornamental shrub, known as "Briar Rose" or "Bridal Rose."

Rubus probus. Bailey *Gent. Herb.* **1**:150. 1923.

Erect shrub, 2–2.5 m high, similar to *R. rosaefolius*, but less prickly and glabrous on the petioles, leaf-blades and pedicels; new canes arching, not climbing. Leaflets 3–9, but mostly 7, broader and ovate-lanceolate or ovate, prominently and approximately veined, and margins deeply and sharply doubly toothed. Leaves on new canes 20–25 cm long, the leaflets 10 cm long. Flowers corymbose, rather numerous, about 9–10 together at the end of the branches, rather large; pedicels about as long as the petioles; calyx-lobes shortly pointed, not caudate, not or scarcely exceeding the petals. Fruit flat; drupelets very numerous, red, detaching from the receptacle like a ring, i. e., the central pistils have not been developed leaving thus a hole in the middle of the fruit.

Porto Rico; a cultivated plant, of doubtful origin; related to *R. rosaefolius;* perhaps *R. ellipticus* x *rosaefolius.*

The "Cardinal Balloon Berry" of Burbank is a native species from central China of this series, but of which it is not yet possible to say.

Series 4. **Pungentes.** Focke *Spec. Rub.* **2**:160. 1911; *Ibid.* **3**:264. 1914.

Leaves 3-foliolate, but mostly pinnately 5- to 11-foliolate. Flowers solitary or a few, loosely clustered, rather large. Drupelets less numerous than in the Rosaefolii, and the core dry at maturity.

About 15 species; mostly from China.

A. Peduncles smooth; petals white.....*R. biflorus*
AA. Peduncles hirsute and prickly; petals reddish purple.....*R. lasiostylus*

Rubus biflorus. Buchanan ex Smith in Rees *Cyc.* **30**:32. 1819; Focke *Spec. Rub.* **2**:166. 1911; Bailey *Stand. Cyc. Hort.* **5**:3027. 1916.

R. leucodermis Hort. not Dougl.

Robust shrub with stout erect stems, 2–3 m high; canes arching, branched, terete, armed with stout, straight, broad-based prickles and covered with a thick, white, waxy layer. Leaves pinnate, 3- to 5-foliolate, dark green and with scattered hairs above and white felty beneath, leaflets sessile, obliquely ovate, acute, sharply and irregularly doubly toothed, terminal ones broader more ovate and often somewhat 3-lobed; petioles long, with scattered hooked prickles, waxy white; stipules linear. Flowering branches short, leaves 3-foliolate, leaflets deeper incised. Flowers mostly 2–3, sometimes more, peduncles rather long, smooth or almost so, drooping. Calyx pubescent, lobes broadly ovate, mucronate or caudate; petals broad, round, white, exceeding the calyx; stamens and pistils numerous. Fruit drooping, rather large, roundish, yellow, edible.

Himalaya, up to 10,000 feet, and southwestern China; chiefly valuable as an ornamental shrub; very effective on lawns during winter because of its waxy white canes. The flowers are showier and larger than those of the common raspberry and its fruit is attractive. There is a variety, *quinqueflorus*, Focke in Sargent *Pl. Wilson.* **1**:53. 1911, which has 3–8 flowers. It comes from western Szechwan and is probably hardier and more productive.

Rubus lasiostylus. Focke in Hooker *Ic. Pl.* 1951. 1891; Focke *Spec. Rub.* **2**:167. 1911; Bailey *Stand. Cyc. Hort.* **5**:3027. 1916.

Canes erect, 1.2–1.8 m high, stout, covered with a waxy bluish white bloom, glabrous, but covered with numerous slender pungent bristles. Leaves pinnately 3- to 5-foliolate; lateral leaflets ovate, coarsely and unevenly doubly toothed, terminal one much larger, cordate at the base, more or less 3-lobed and lobately toothed along the upper half, with scattered hairs above and densely white felty beneath. Flowers few, rather small; pedicels hirsute and prickly; calyx tomentose or prickly, lobes ovate-lanceolate-acuminate; petals reddish purple, shorter than the calyx-lobes, fugacious. Fruit roundish, red, downy, 25 mm across, with an agreeable acid taste.

Central China; from the Province Hupeh.

Usually cultivated for its white-colored canes; the fruits are said to be of little importance.

Series 5. **Orientales** Berger.

Shrubs with terete canes, smooth and with glaucous bloom or glandular hirsute, prickly. Leaves pinnate, petioles and midveins prickly. Inflorescence panicled, flowers usually small with pink petals.

Many species from temperate and subtropical eastern Asia, chiefly from China and Japan.

A. Stems or canes densely beset with bristles and stalked glands
  B. Leaves mostly 3-foliolate, sparingly hairy above, white tomentose beneath..... *R. phoenicolasius*
  BB. Leaves mostly 5-foliolate, dull green and hairy on both sides.....*R. adenophorus*
AA. Stems not so
  B. Stems downy at least when young
    C. Stems downy, glandular and with straight prickles. Inflorescence densely glandular.....*R. innominatus*
    CC. Stems downy when young, but not glandular
      D. Leaves mostly 7-foliolate; leaflets ovate-lanceolate, silvery white underneath.. *R. niveus*
      DD. Leaves mostly 3–5 foliolate; leaflets ovate, grayish white underneath..... *R. kuntzeanus*
  BB. Stems glabrous also when young
    C. Leaflets usually 9, ovate-lanceolate, white tomentose beneath; inflorescence elongate-panicled.....*R. giraldianus*
    CC. Leaflets usually 7, ovate or rhomboid-ovate, glabrous on both sides or felt underneath not very conspicuous; inflorescence flat, cymose.....*R. coreanus*

Rubus phoenicolasius. Maximowicz *Bul. Acad. St. Petersb.* **8**:293. 1871; Card *Bush-Fr.* 321. 1898; Focke *Spec. Rub.* **2**:191. 1911; Gray *New Man.* 7th Ed. 487. 1911; Rydberg *N. Am. Fl.* **22**:441. 1913; Bailey *Stand. Cyc. Hort.* **5**:3027. 1916; Bailey *Gent. Herb.* **1**:147. 1923.

Japanese Wineberry.— Canes biennial, 1-3 m long, robust, arching, often rooting at the tip, terete, villous and densely covered with stalked, red-brown glands of various length, mixed with scattered, brown, straight prickles, as is the whole plant, the petioles, petiolules, midveins and the inflorescence. Leaves of the canes 3-foliolate, some lower ones often 5-foliolate, dark green and sparingly pilose or glabrate above, densely white tomentose beneath, simply or doubly toothed; teeth broad, obtuse, mucronate; stipules filiform; petiole about as long as the lower leaflets; these obliquely ovate, with a short point, almost sessile, terminal leaflet stalked, large, cordate-ovate or somewhat 3-lobed, suddenly contracted into a short narrow point, from the middle lobately toothed. Flowering shoots often rather long with similar leaves; flowers near the top of the branches, the lower ones in stalked, few-flowered axillary clusters, the upper ones in a short raceme, the whole inflorescence extremely glandular; bracts linear; calyx-lobes long acuminate, tomentose above, spreading at first; petals short, obovate, pink. Fruit roundish, bright red, acidulous, easily detaching from the yellow receptacle and disc.

Japan to western China; in the mountains; escaped from cultivation and subspontaneous in many places in the United States. It was intro-

duced in 1890 by John Lewis Childs; into England about 1876. *R. phoenicolasius* has been hybridized with *R. idaeus*. One of these hybrids has been described as:

Rubus paxii. Focke *Abh. Nat. Ver. Bremen* **19**:204. 1908; Focke *Spec. Rub.* **2**:192. 1911. *R. phoenicolasius* x *idaeus*. Wilson *Rep. Int. Conf. Genet.* 209. 1906.

Habit and glandulosity much like that of *R. phoenicolasius*, but lower leaves often pinnately 5-foliolate and leaflets narrower. Petals and filaments white, rose colored at the base.

A similar hybrid has been produced at Geneva. It is a cross with the Empire raspberry. In some individuals of this cross the stems are more prickly, but scarcely glandular. Another interesting hybrid between *R. phoenicolasius* and the Agawam blackberry was raised at Geneva.

Rubus adenophorus. Rolfe *Kew Bul.* 382. 1910; Focke *Spec. Rub.* **3**:270. 1914; Bailey *Stand. Cyc. Hort.* **5**:3027. 1916.

R. sagatus. Focke *Spec. Rub.* **1**:198. 1911.

Deciduous shrub, 1.5–3 m high; stems erect or arching, stout, densely beset with bristles, large dark-stalked glands and broad-based prickles. Leaves pinnately 5-foliolate; petiole and petiolules bristly and glandular; leaflets 5–13 cm long, ovate, shortly pointed, roundish or cordate at the base, sharply and doubly toothed, dull green and hairy on both sides, the lateral ones sessile, the terminal one larger, subtrilobate and lobately doubly dentate in the upper half. Leaves of the flowering shoots similar, 3-foliolate, the uppermost simple. Flowers in terminal panicles, densely bristly and glandular; short stalked, calyx-lobes ovate, long mucronate; petals shorter, pink, toothed. Fruit round, almost 15 mm across, finally black, edible.

Central China, western Hupeh; introduced by E. H. Wilson in 1907. More an ornamental shrub for its fine foliage and the red glandular canes than a fruit plant.

Rubus innominatus. Moore *Jour. Bot.* **4**:226. 1875; Focke *Spec. Rub.* **2**:195. 1911; Bailey *Stand. Cyc. Hort.* **5**:3027. 1916; Bean *Trees & Shrubs* **2**:461. 1921.

Erect shrub, 2–2.5 m high; canes and petioles adpressedly downy, gray, glandular and armed with scattered straight prickles. Leaves pinnately 5-foliolate, rarely 7-foliolate, the uppermost 3-foliolate; leaflets irregularly and deeply toothed, teeth mucronate, with stiff hairs above and grayish or whitish tomentose beneath; lateral leaflets almost sessile, obliquely oblong or ovate-lanceolate, terminal ones ovate or ovate-lanceolate-acuminate; stipules small, filiform. Inflorescence panicled, tomentose and densely beset with short stalked glands and sometimes a few prickles; pedicels short; flowers small; calyx-lobes ovate; petals roundish, rose colored, shorter than the calyx-lobes. Fruit half round, orange-red.

Central and western China. Probably not in cultivation. A variety "Van Fleet" came from a cross between *R.* "*innominatus*" x Cuthbert; (see under *R. kuntzeanus*).

Rubus niveus. Thunberg *Dissert. de Rub.* 9, fig. 3. 1813; Focke *Spec. Rub.* **2**:182. 1911; Bailey *Stand. Cyc. Hort.* **5**:3029. 1916.

Strong-growing shrub, 1–2 m high or more; canes terete, with long straight or curved prickles, downy when young with a dense white bloom later on. Leaves with 2–4 or rarely 5 pairs of leaflets, but mostly 7-foliolate, leaflets oblong or rhomboid-oblong or ovate-lanceolate, with 6–8 lateral veins on each side, variously coarsely and often doubly serrate, dull green and sparingly hairy above, silvery white tomentose underneath. Inflorescence paniculate, enlarged by lower axillar branches, villous or tomentose. Flowers small; calyx whitish tomentose, petals roundish, shorter than the calyx-lobes, rose colored or purple. Fruit subglobular, smooth, whitish, reddish later on and bluish black when ripe, edible, acidulous.

India; along the southern slopes of the Himalaya to Sikkim, at elevations from 4500–9000 feet, in southern China, in Ceylon, and cultivated in some places for its fruit. This species seems to have a wide distribution and to be rather variable. It does not seem to be cultivated in the United States, but may be useful in producing a raspberry for the warmer southern states.

Rubus kuntzeanus. Hemsley *Jour. Linn. Soc.* **23**:232. 1887; Focke *Spec. Rub.* **2**:195. 1911; Bailey *Stand. Cyc. Hort.* **5**:3028. 1916; Bean *Trees & Shrubs* **2**:461. 1921.

R. innominatus Hort., not S. Moore.

Shrub 2–2.5 m high; canes grayish velvety downy and with scattered broad-based prickles. Leaves pinnately 3- to 5-foliolate, dark green and slightly hairy above, densely white tomentose underneath, irregularly toothed; lateral leaflets very short'y stalked, obliquely ovate, 5–10 cm long, rounded at the base, acuminate; terminal ones larger and broader, cordate and often somewhat 3-lobed; petiole and rhachis and midveins downy and prickly. Inflorescence a long narrow panicle, the lower branches axillary, peduncles and calyxes tomentose, not glandular nor prickly. Flowers small, shortly stalked; calyx-lobes ovate, shortly mucronate; petals scarcely longer, pink, suborbicular, fugacious. Fruits roundish, 2 cm across, orange-red, edible and of good flavor.

Central and western China; introduced by Augustine Henry in 1886 and again by E. H. Wilson about 1905. It comes near to *R. innominatus* S. Moore, but it is glandless. From this species the " Van Fleet Raspberry," which is said to be a hybrid between *R. innominatus* and the variety Cuthbert is derived. All the characters of this hybrid seem to prove that it is a cross with *R. kuntzeanus* and not with *R. innominatus* S. Moore. The " Van Fleet " is entirely glandless and 3-foliolate on canes and inflorescence.

Rubus giraldianus. Focke in Engler *Bot. Jahrb.* **29**:401. 1901; Focke *Spec. Rub.* **2**:194. 1911; Bailey *Stand. Cyc. Hort.* **5**:3029. 1916.

Very prickly robust shrub, canes terete, stout, up to 3 m high, arching and with hanging branches at the summit, brownish, covered with a fine whitish blue bloom; prickles

numerous, stout, hooked or straight, from a broad flat base. Leaves pinnate, leaflets usually 9, petiole and rhachis pubescent, glaucous and together with the midveins with hooked prickles; lateral leaflets sessile, ovate-lanceolate, acuminate, coarsely doubly serrate; terminal leaflets wider, larger, lobately doubly serrate, dull grass-green above, white tomentose at the back. Flowers small, in a terminal tomentose panicle, pedicels short, prickly; petals shorter than the calyx-lobes, pink or purple. Fruit small, black.

Central and northern China; introduced about 1907; rather more an ornamental for its habit and white stems than a fruit plant; quite hardy at Geneva.

Rubus coreanus. Miquel *Prol. Fl. Jap.* 34. 1867; Focke *Spec. Rub.* **2**:184. 1911; Bailey *Stand. Cyc. Hort.* **5**:3029. 1916; Bean *Trees & Shrubs* **2**:456. 1921.

Canes terete, erect or arching, pale yellowish green to deep brown when older, smooth, covered with a dense white bloom, prickles variously scattered or remote, rather large, deltoid, straight or curved. Leaves usually with 7 leaflets, lateral ones sessile, ovate or rhomboid-ovate, pointed, coarsely simple or doubly toothed, terminal one larger and broader, cordate, and often 3-lobed or lobately incised in the upper half, glabrescent or glabrous on both sides; petiole and rhachis prickly. Flowering shoots glabrous, with 5- to 3-foliolate leaves. Inflorescence a many-flowered, short, and broad cyme; flowers small; calyx-lobes deltoid, lanceolate; petals shorter, elliptic, rose colored. Fruit small, red to black, edible, but of poor flavor.

Korea, China; a handsome, hardy shrub, but scarcely of importance as a fruit plant.

Series 6. **Elliptici.** Focke *Spec. Rub.* **2**:198. 1911.

Large glandless climbing shrubs.

Two species from the Himalaya and central China, of which the following has been introduced:

Rubus ellipticus. Smith in Rees *Cyc.* **30**: R. No. 16. 1815; Focke *Spec. Rub.* **2**: 198. 1911; Rydberg *N. Am. Fl.* **22**:442. 1913; Bailey *Stand. Cyc. Hort.* **5**:3027. 1916; Bailey *Gent. Herb.* **1**:147. 1923.

Golden Evergreen Raspberry.— Vigorous shrub with perennial climbing stems, 1–5 m long; canes terete or obscurely angled, like the petioles densely hispid from long reddish hairs, mixed with flattened straight prickles. Leaves 3-foliolate; petioles 3–7 cm long, like the petiolules and midveins armed with recurved prickles; stipules small subulate; leaflets sharply and finely double-serrate, elliptic or obovate, obtuse or emarginate, coriaceous, dark green and almost or quite glabrous above, white or grayish tomentose beneath, the lateral ones shortly stalked or almost sessile, the terminal one longer stalked and larger. Flowers 15–25 mm across, clustered on axillar branchlets or terminal and paniculed, tomentose; calyx-lobes ovate, acute; petals white, obovate, scarcely longer. Fruit yellow to golden yellow, of the shape and size of a raspberry and of good quality.

Himalayas; in elevations from 3000–6000 feet, naturalized in Jamaica; grown in Florida and southern California, where the northern raspberries

do not succeed, but chiefly as an ornamental plant to cover pergolas, arbors, and fences.

Series 7. **Occidentales.** Focke *Spec. Rub.* **2**:201. 1911.

Canes long, arching, rooting at the tips or prostrate, with glaucous bloom and scattered usually stout prickles. Leaves 3-foliolate or pedately 5-foliolate. Inflorescence corymbiform; pedicels usually prickly sometimes glandular.

About 8 species extending from western North America to Peru along the mountains.

A. Leaves white tomentose beneath
  B. Fruit hemispherical; calyx-lobes not reflexed, spreading or enclosing the fruit; leaflets with 4–8 lateral veins on each side of the midrib
    C. Flowers several, corymbose or panicled; petals shorter than the calyx-lobes
      D. Inflorescence without glands; tall plants; leaflets glabrous above
        E. Prickles of the inflorescence only slightly curved or straight and scarcely flattened; leaflets broad, suddenly contracted into a point, dark green above; canes intensely bluish green, or purplish later on, with a dense bloom ..... *R. occidentalis*
        EE. Prickles of the inflorescence with a broad flat base and strongly hooked or falcate; leaflets less abruptly pointed, more yellowish green; canes more yellowish under the dense bloom ..... *R. leucodermis*
      DD. Inflorescence or calyx with stalked glands; smaller plants with prostrate canes; leaflets hairy above
        E. Canes puberulous, with a few small prickles ..... *R. glaucifolius*
        EE. Canes glabrous, with many stout prickles ..... *R. bernardinus*
    CC. Flowers solitary or sometimes 2–3 together; petals about as long as the calyx-lobes ..... *R. pringlei*
  BB. Fruit oblong; calyx-lobes reflexed; leaflets with 9–15 lateral veins on each side of the midrib
    C. Leaflets glabrous above, long acuminate; fruit 8–15 mm across ..... *R. glaucus*
    CC. Leaflets puberulent above, suddenly contracted to a long point; fruit 6–8 mm across ..... *R. eriocarpus*
AA. Leaves green and glabrous on both sides; petals scarcely half as long as the calyx-lobes ..... *R. nigerrimus*

Rubus occidentalis. Linnaeus *Sp. Pl.* 493. 1753; Card *Bush-Fr.* 319. 1898; Focke *Spec. Rub.* **2**:201. 1911; Gray *New Man.* 7th Ed. 487. 1911; Rydberg *N. Am. Fl.* **22**: 443. 1913; Bailey *Stand. Cyc. Hort.* **5**:3028. 1916; Bailey *Gent. Herb.* **1**:147. 1923.

Black Raspberry, Blackcap, Thimbleberry.— Vigorous shrub, turions or canes erect, arching and rooting at the tips, terete, greenish or purplish, covered with a fine white or bluish bloom, glabrous, remotely beset with flattened, deltoid, straight or hooked prickles, but without bristles. Lower leaves of the turions larger, 3-foliolate or pedately 5-foliolate, the lateral leaflets in the latter case stalked, the lowest sessile, in 3-foliolate leaves the lower leaflets sessile and often with a basal lobe, terminal leaflet long stalked, broadly cordate-ovate, all leaflets pointed and sharply doubly toothed, green above and densely white tomentose beneath. Petioles stout, like the petiolules and midveins prickly; stipules small, subulate. The upper leaves gradually diminishing in size, with narrower and longer

pointed leaflets. Flowering branches green with remote slender prickles; leaves 3-foliolate, leaflets rarely cordate at the base, pointed and sharply serrate; petioles and petiolules pubescent. Flowers densely almost umbellately corymbose at the top of the branches on short and stiff pedicels, and a few usually 3-flowered clusters from the upper axils. Pedicels and calyx white tomentose with numerous spreading slightly curved prickles, without glands; calyx-lobes ovoid-deltoid with a long tip, unarmed, reflexed. Petals oblong, whitish, shorter than the calyx-lobes. Stamens numerous, filaments flattened, shorter than the styles. Fruit hemispherical, black, edible.

North America; from New Brunswick and Quebec to Minnesota in the west, and south as far as Colorado and Georgia, but in the south restricted to the mountains; chiefly in woods, along fences and in hedges; sometimes a nasty weed.

The species varies little; a variety, *pallidus*, Bailey *Cyc. Am. Hort.* 1582. 1902, or var. *flavobaccus*, Blanchard *Rhodora* 7:146. 1905, bears amber-yellow fruits. Hybrids with other species have been recorded, the most important see under *R. idaeus*. *R. occidentalis* has become a widely cultivated plant with numerous varieties.

The following is its Pacific sister-species:

Rubus leucodermis. Douglas in Hooker *Fl. Bor. Am.* 178. 1832; Torrey & Gray *Fl. N. Am.* 1:454. 1840; Rydberg *N Am. Fl.* 22:444. 1911; Bailey *Stand. Cyc. Hort.* 5:3028. 1916.

R. occidentalis var. *leucodermis*. Card *Bush-Fr.* 319. 1898; Focke *Spec. Rub.* 2:201. 1911.

Very similar to *R. occidentalis*, and also very glaucous; canes armed with stout, flat, more recurved prickles. Leaves of the canes also similar, 3- to 5-foliolate, pedate; lower leaflets sessile, lateral ones stalked, the terminal one larger, sometimes sublobate, teeth variable. The prickles on petioles and petiolules and especially on the peduncles and pedicels with a broader flatter base and more falcate or hooked. Inflorescence much like in *R. occidentalis*, not glandular; pedicels usually glabrescent, not tomentose; calyx-lobes acuminate. Fruit dark reddish purple or blackish with tomentose drupelets.

Western North America; from Montana and Wyoming to south California in San Antonio mountains at about 3200 feet elevation, and north to British Columbia. It is a more robust and earlier plant than *R. occidentalis*, with more yellowish canes and the leaflets of a lighter green and less abruptly pointed.

Rubus leucodermis var. **trinitatis** Berger, n. var.

Leaves of flowering branches simple, cordate-orbicular, shortly 3-lobed, crenate. Flowers somewhat smaller, calyx-lobes with a short tip, white villous.

Northern California; Trinity County, near Douglas City; first collected June 13, 1896, by W. C. Blasdale. This form with round simple leaves

corresponds to *R. idaeus* (*strigosus*) var. *egglestonii* (Blanch.) Fern. and to *R. idaeus* (*vulgatus*) var. *obtusifolius* Willd. The occurrence of such a form or variety in *R. leucodermis* was not known before; it may also occur in *R. occidentalis*. A similar form is also known of *R. rosaefolius*.

Rubus glaucifolius. Kellogg *Proc. Calif. Acad.* **1**:67. 1855; Rydberg *N. Am. Fl.* **22**:444. 1913.

Canes prostrate, rather slender, puberulous, with scattered, small, hooked prickles. Leaves 3-foliolate; lower leaflets almost sessile, obliquely ovate, terminal one rhomboid-ovate, all shortly pointed, with mostly simple, broadly ovate teeth, green and finely pubescent above, with a dense white felt underneath and 4–6 prominent veins on each half. Flowers smaller, clustered; pedicels and calyx pubescent, unarmed or more or less prickly, calyx-lobes glandular. Fruit with a few drupelets, red.

Northern California to southern Oregon; in open places in the mountain forests from 3000–4000 feet elevation. It is a dewberry in habit and is often mistaken for a form of *R. leucodermis*, but is quite distinct.

Rubus bernardinus. Rydberg *N. Am. Fl.* **22**:444. 1913.

Canes apparently trailing on the ground, brown with a glaucous bloom and many strongly hooked prickles from a broadened base. Flowering shoots with 3-foliolate leaves, hairy above, densely white tomentose beneath; petioles prickly, hirsute and glandular; leaflets small, pointed, finely doubly serrate. Flowers few, pedicels and calyx-lobes tomentose and sparingly glandular. Berry hemispheric, pubescent, with numerous drupelets.

Southern California; about intermediate between *R. leucodermis* and *R. glaucifolius*.

R. eriocarpus. Liebm. *Vidensk. Meddel. Kjoeb.* **4**:162. 1852; Focke *Spec. Rub.* **2**:202. 1911; Rydberg *N. Am. Fl.* **22**:442. 1913.

Stems obtusely angled, glaucous-pruinose, prickly; leaves of the turions pedately 5-foliolate, leaflets puberulent above, white tomentose beneath, finely doubly serrate, terminal one ovate, rounded or cordate at the base, suddenly contracted to a long point with about 10–15 lateral veins on each side, lateral leaflets ovate-lanceolate. Corymbs few flowered, tomentose and with weak prickles. Fruit oblong, 6–8 mm across and 10–12 mm long, drupelets villous-tomentose.

Central Mexico to Panama.

R. pringlei. Rydberg *N. Am. Fl.* **22**:443. 1913.

R. occidentalis var. vel subsp. *mexicanus.* Focke *Spec. Rub.* **2**:201. 1911.

Leaves all ternate, dark green and finely puberulent above, white tomentose beneath; terminal leaflets from a rounded or acute base, ovate-lanceolate or lanceolate, long pointed, with about 6–8 lateral veins on each side, doubly serrate with narrow sharply cuspidate and mucronate teeth. Flowers larger than in the others, solitary or rarely 2–3 together; pedicels tomentose, bristly or prickly; calyx-lobes ovate, abruptly cuspidate, tomentose, enclosing the fruit later on; petals as long, white. Fruit hemispheric about 20 mm long and 15 mm across, red, at last purplish with a bloom.

Northern Mexico to Guatemala.

Rubus glaucus. Bentham *Pl. Hartweg.* 173. 1845; Focke *Spec. Rub.* **2**:202. 1911; Rydberg *N. Am. Fl.* **22**:442. 1913; Popenoe *Jour. Hered.* **12**:387–393, fig. 1921; *U. S. D. A. Bur. Pl. Indust. Invent.* 65, 66, Pl. V. 1923.

Andes Berry.— Vigorous shrub, canes half-climbing, 3–4 m long, rooting at the tip, glabrous, more or less densely covered with a white bloom, armed with scattered, rather small, hooked, compressed prickles. Leaves 3-foliolate, leaflets lanceolate or ovate-lanceolate, long acuminate, roundish or subcordate at the base, sharply but not deeply doubly serrate, about 6–10 cm long, dark green and glabrate above, silvery white tomentose underneath, with 9–12 lateral veins on each side; petioles 5–12 cm long, like the petiolules and midveins with recurved prickles; petiolules 1–5 cm long; stipules subulate. Upper leaves simple, lanceolate, bract-like. Flowers in terminal racemes, lower flowers axillary and therefore the inflorescence often 15–30 cm long, glabrous or more or less tomentose and sometimes with a few glands; pedicels stiffly spreading, sparingly prickly; prickles almost straight and scarcely flattened at the base; calyx-lobes lanceolate, suddenly long acuminate, 10–16 mm long, more or less tomentose, sometimes with a few short prickles, strongly reflexed on the fruit; petals about as long, white. Fruit dark purple, round to oblong-oval, 25 mm long, and 8–15 mm across, with large drupelets, tomentose at first.

Tropical America; from southern Mexico to Ecuador and Peru on highlands; first collected by Hartweg on Mount Pichincha in Ecuador; also cultivated in Ecuador.

This plant is much esteemed for its excellent fruit, the flavor of which is said to resemble that of the red raspberry, being rich and aromatic. The fruit is also compared with that of the loganberry, but is said to be better and sweeter. The berries do not separate easily from the receptacle when ripe. This bramble is known as " Mora de Castillo " in its native countries, and is used " to cover arbors and fences, or can be trained into bush form, making a clump about 10 feet broad and high." It was introduced into the United States by Wilson Popenoe in 1920; it succeeds on all sorts of soil, but it likes a heavy soil and plenty of moisture best. It is very likely an important acquisition for the southern and southwestern United States, especially for breeding work.

Rubus nigerrimus. Rydberg *N. Am. Fl.* **22**:445. 1913.

Stems 1–2 m high, glaucous at first, brownish and shining later on, with numerous, straight, compressed, long prickles. Leaves 3-foliolate, or 5-foliolate on more robust canes; leaflets ovate, acuminate, coarsely doubly serrate, of rather firm texture, green and glabrous on both sides; lateral leaflets almost sessile, the terminal one with a petiolule 2–5 cm long, like the petiole and midvein armed with recurved prickles. Flowers corymbose and axillar; peduncle and pedicels with recurved prickles; calyx glabrous or sparingly glandular, lobes lanceolate with a long point, 12 mm long; petals less than half as long, white. Fruit almost black, drupelets tomentose.

Western North America; eastern and central Washington.

Series 8. **Idaei.**

Canes more or less erect or nodding. There are 9 species known, natives of northern Asia, one extending to Europe and North America.

A. Canes green, densely tomentose and prickly; stipules deeply lacerate....*R. mesogaeus*
AA. Canes more or less brown, prickly or bristly; stipules entire, subulate.....*R. idaeus*

Rubus mesogaeus. Focke in Engler *Bot. Jahrb.* **29**:399. 1901; Focke *Spec. Rub.* **2**:204. 1911; Bailey *Stand. Cyc. Hort.* **5**:3028. 1916.

Robust s b, canes erect, stout, green, densely tomentose and prickly, prickles straight or curved upwards, pubescent. Leaves 3-foliolate, petioles and petiolules tomentose and prickly like the stems; stipules lanceolate, deeply lacerate with subulate segments; leaflets sessile, obliquely ovate, acuminate, cordate at the base, terminal one broader and larger, cordate, lobately incised, finely doubly serrate, dark green and pubescent above and densely velvety pubescent underneath. Inflorescence a dense erect terminal cluster augmented by some lower erect axillar clusters; flowers small, short pedicelled, pubescent, petals small, white. Fruit small, globular.

Central China; rather insignificant as flowers and fruit are concerned, but the foliage is very ornamental. Quite hardy at Geneva.

Rubus idaeus. Linnaeus *Sp. Pl.* 492. 1753; Focke *Spec. Rub.* **2**:207. 1911; Gray *New Man.* 7th Ed. 486. 1911; Fernald *Rhodora* **21**:89. 1919; Bailey *Gent. Herb.* **1**:148. 1923.

Red Raspberry.— Canes erect, slightly arching at the top, terete, more or less bristly or prickly, glabrous or downy, green or brownish, glaucous. Leaves usually pinnately 5-foliolate, leaflets more or less ovate, pointed and doubly serrate, lateral ones sessile, green above and usually more or less densely white tomentose underneath. Inflorescence terminal and axillary, racemose, pedicels slightly nodding; calyx-lobes ovate-deltoid to lanceolate-deltoid, cuspidate; petals oblong, white, about as long as the stamens. Fruit pendulous red or rarely amber colored, drupelets numerous, soft, sweet, tomentose.

Northern Hemisphere; in woods, on sunny and shady, dry and moist places, on poor as well as on good soil, common through northern Europe, Asia, and America. A very variable plant, with several distinct geographical varieties, often considered as different species or subspecies, but usually connected by numerous intermediate forms, and not always readily identified.

The following is a key to these varieties:

A. Inflorescence pubescent or felty with adpressed grayish or whitish hairs, more or less prickly, but without glands
  B. Canes not bristly to the top
    C. Inflorescence elongately racemose.....1. *R. idaeus vulgatus*
      D. Leaflets of flowering shoots 3-foliolate
        E. Leaflets white underneath, narrow lanceolate or ovate-lanceolate, strongly toothed.....1a. *R. idaeus vulgatus* forma *angustifolius*

EE. Leaflets green on both sides.....1b. *R. idaeus vulgatus* forma *denudatus*
DD. Leaflets of flowering shoots 1-foliolate, rarely ternate, roundish, reniform, more or less lobed.....1c. *R. idaeus vulgatus* forma *obtusifolia*
CC. Inflorescence shortly racemose.....2. *R. idaeus nipponicus*
BB. Canes bristly to the top
C. Canes glabrous
D. Canes densely beset with usually pale prickles and thin flexible bristles 3. *R. idaeus maritimus*
DD. Canes densely beset with usually purplish black short subulate bristles..... 4. *R. idaeus melanotrachys*
CC. Canes downy or pubescent.....*R. idaeus canadensis* forma *eglandulosus*
AA. Inflorescence glandular, bristly and prickly and usually the whole plant more or less glandular
B. Bark of the canes or turions glabrous. (Canes without prickles, see *R. idaeus strigosus* forma *tonsus*)
C. Prickles rather stout and long with smaller ones between them, densely set; flowering branches, petioles, peduncles, and calyxes densely beset with mostly dark reddish bristles and glands.....5. *R. idaeus aculeatissimus*
CC. Prickles bristle form and not much thickened at base
D. Leaflets of the new canes oblong to ovate, pointed
E. Leaves of flowering shoots mostly pinnately 5-foliolate; calyx reddish, very prickly and glandular.....6. *R. idaeus arizonicus*
EE. Leaves of flowering shoots 3-foliolate
F. Leaflets white tomentose beneath.....7. *R. idaeus strigosus*
FF. Leaflets green on both sides, tomentose beneath when young
G. Leaflets not strongly veined.....8. *R. idaeus peramoenus*
GG. Leaflets strongly veined and plicate.....9. *R. idaeus viburnifolius*
DD. Leaflets all roundish, on the flowering shoots simple, reniform-orbicular..... 10. *R. idaeus egglestonii*
BB. Bark of the canes downy or tomentose
C. Turions or young canes green, tomentose and glandular. 11. *R. idaeus heterolasius*
CC. Turions brown or purple
D. Prickles of the turions all bristle form
E. Leaflets green on both sides.....9. *R. idaeus viburnifolius*
EE. Leaflets white underneath.....12. *R. idaeus canadensis*
DD. Prickles of the turions of various size and longer, the stouter ones more conical at the base
E. Leaves of flowering branches 3-foliolate.....13. *R. idaeus acalyphaceus*
EE. Leaves of flowering branches mostly 5-foliolate....6. *R. idaeus arizonicus*

1. **Rubus idaeus** Linn. var. **vulgatus.** Arrhenius *Rub. Suec. Monogr.* 12. 1839; Focke *Spec. Rub.* **2**:207. 1911.

R. idaeus. Card *Bush-Fr.* 314. 1898; Rydberg *N. Am. Fl.* **22**:445. 1913; Bailey *Stand. Cyc. Hort.* **5**:3028. 1916.

Canes erect, slightly arching at the top, glabrous or finely downy the first year, more or less densely beset with bristles or weak prickles, smooth near the top. Stipules subulate, ciliate; petioles 3–6 cm long, like the petiolules finely downy, prickles small and short, few. Terminal leaflet stalked, ovate or broadly ovate, acuminate, roundish or subcordate at the base, coarsely doubly toothed in the upper half, teeth shortly mucronate; dark

green, slightly bullate and soft and finely hairy or glabrous above, white tomentose beneath, 6–7 cm long; lateral leaflets sessile, smaller, obliquely ovate, the lower half wide, coarser toothed and sometimes sublobed. Flowering branches downy, with short prickles, leaves mostly 3-foliolate, similar to those of the turions, the uppermost often simple, ovate or lanceolate. Inflorescence racemose, terminal and from the upper axils, pedicels slightly nodding with a few small curved prickles, like the calyx more or less white tomentose. Calyx rarely with a few prickles, lobes reflexed, long acuminate, felty on both sides; petals shorter than the calyx-lobes. Fruit thimble-shaped, deep red.

Europe, western Asia, eastern North America; from Quebec as far west as Minnesota, North and South Dakota. Named for Mt. Ida in Asia Minor. This is the mother species of the cultivated European red raspberries. It is a very variable plant, especially in color of canes, the shape, color, and number of prickles, and the shape of the leaflets, both of the turions and of the flowering shoots.

1a. *R. idaeus vulgatus* forma *angustifolius*, Schmidely *Bul. Soc. Bot. Genève* 48. 1888.

This is a native of Europe and the Caucasus; it grows on streamlets in humid mountains at about 2400–3600 feet elevation.

1b. *R. idaeus vulgatus* forma *denudatus*. Schimp. & Spenn. *Fl. Frib.* 743. 1829. *R. idaeus* var. *viridis*. Doell *Rhein. Flora* 766. 1843.

A native of central Europe, in damp forests.

1c. *R. idaeus vulgatus* forma *obtusifolius*. Willdenow *Berl. Baumz.* 2nd Ed. 409. 1811.

R. idaeus anomalus. Arrhenius *Rub. Suec. Mon.* 14. 1839; *R. Leesi* Babgt. in Steele *Hdb. Field Fl.* 60. 1847.

A strange form, occasionally found in Europe and quite remarkable for its foliage. Other forms described by Focke (l. c. 208) may be briefly mentioned, viz., 1d. forma *purpureus*, with dark brown red leaves like *Fagus silvatica purpurea;* 1e. forma *phyllanthus*, a monstrosity with leafy cones instead of flowers; 1f. forma *sterilis*, leaves almost all 3-foliolate with leaflets similar to forma *obtusifolius* and sterile flowers; 1g. forma *inermis* with unarmed canes; 1h. forma *asperrimus* (*R. idaeus* var. *asperrimus*), Steele *Hdb. Field Fl.* 60. 1847; Rogers *Hdb. Brit. Rubi.* 2. 1900, the "White Raspberry" is the form with pale fruits. It is occasionally found wild, but may be chiefly a garden escape.

2. **Rubus idaeus** var. **nipponicus.** Focke *Abh. Nat. Ver. Bremen* **13**:471. 1896; Focke *Spec. Rub.* **2**:209. 1911, as subspecies.

A more robust plant with numerous flowers in short racemes and obovate-oblong petals, and sparingly pubescent drupelets.

Japan and probably western China.

3. **Rubus idaeus** var. **maritimus.** Arrhenius *Rub. Suec. Mon.* 13. 1839; Focke *Spec. Rub.* **2**:209. 1911, as subspecies.

Canes with numerous unequal prickles and thin flexible bristles. Calyx often prickly.

Sweden and northeastern Germany; along the coast of the Baltic Sea.

4. **Rubus idaeus** var. **melanotrachys.** Focke *Abh. Nat. Ver. Bremen* **13**:472. 1896; Focke *Spec. Rub.* **2**:209. 1911, as subspecies and species; Fernald *Rhodora* **21**:97. 1919; Rydberg *N. Am. Fl.* **22**:445. 1913, as species.

Canes and twigs very densely bristly, bristles short, stiff. Similar to *R. idaeus aculeatissimus*, but bristles much shorter and without stalked glands.

Northwestern America; Idaho.

5. **Rubus idaeus** var. **aculeatissimus.** Regel & Tiling *Fl. Ajan.* 87. 1858; Fernald *Rhodora* **21**:96. 1919; Bailey *Gent. Herb.* **1**:149. 1923.

R. idaeus subspec. *melanolasius.* Focke *Abh. Nat. Ver. Bremen* **13**:473. 1896; Focke *Spec. Rub.* **2**:209. 1911.

R. melanolasius. Focke l. c.; Rydberg *N. Am. Fl.* **22**:448. 1913.

Canes erect, 0.5–1 m or more high, yellow or brownish, sometimes with a glaucous bloom, densely bristly, bristles mostly long and slender; flowering branches, petioles, petiolules, peduncles, pedicels as well as the calyx and the midveins of the leaflets densely beset with spreading bristles and stalked glands, usually of a dark purple color. Racemes few flowered.

Eastern Asia and western North America; from British Columbia and Alberta to Utah and Colorado, chiefly in the mountains, eastward as far as Michigan.

6. **Rubus idaeus** var. **arizonicus** Greene. Fernald *Rhodora* **21**:98. 1911.

R. arizonicus Greene. Rydberg *N. Am. Fl.* **22**:446. 1913.

Young canes 0.5–1 m high slightly downy at first, glabrous later on, with brown bark, easily breaking and peeling off, more or less bristly or prickly, bristles short, of various size. Leaves of the canes pinnately 5- to 7-foliolate; stipules small, subulate; petioles, petiolules, and midveins pubescent, prickly, and glandular; leaflets roundish at the base, acute or shortly pointed, doubly serrate, green above, densely white tomentose underneath, the lateral ones sessile, the terminal ones larger, more or less rhomboid-ovate. Flowering shoots prickly and glandular, leaves mostly 5-foliolate, leaflets similar but smaller. Inflorescence terminal, few or mostly 2-flowered; pedicels, calyx and calyx-lobes bristly and glandular.

Southwestern North America; New Mexico, Arizona, Chihuahua, in the mountains, at about 9000 feet. A rather distinct variety with smaller foliage.

7. **Rubus idaeus** var. **strigosus** Michx. Maximowicz *Bul. Ac. St. Petersb.* **17**:161. 1872; Focke *Spec. Rub.* **2**:209. 1911, as subspecies; Fernald *Rhodora* **22**:96. 1919; Bailey *Gent. Herb.* **1**:149. 1923.

R. strigosus. Michaux *Fl. Bor. Am.* **1**:297. 1803; Card *Bush-Fr.* 317. 1898; Rydberg *N. Am. Fl.* **22**:447. 1913; Bailey *Stand. Cyc. Hort.* **5**:3028. 1916.

R. idaeus var. *aculeatissimus.* Robinson & Fernald in Gray *New Man.* 7th Ed. 486. 1908.

Canes erect, arching at the top, reddish or brownish, sometimes with a whitish bloom, glabrous and more or less densely beset with fine bristles. Leaves of the canes 3- but mostly 5-foliolate, rather thin, more or less glabrous above, white tomentose below; stipules small, setaceous; petioles, petiolules and midveins glabrous but finely bristly and glandular; lateral leaflets sessile, obliquely ovate, pointed, doubly serrate, the teeth ovate, mucronate; the lowest pair larger, often sublobed; terminal leaflet cordate-ovate, shortly acuminate or more or less 3-lobed, about 8 cm long. Flowering branches glabrous, but prickly and glandular, often glaucous. Leaves 3-foliolate, narrower and more pointed, uppermost simple lanceolate. Flowers racemose, drooping; pedicels and calyx and calyx-lobes not tomentose, distinctly glandular, bristly and prickly. Fruit hemispherical, light red.

Eastern Asia and North America; from southern British Columbia to southern Newfoundland, south to Oregon, Wyoming, the Great Lakes and Virginia. It varies a good deal but is always easily distinguished by its more slender habit, the canes are less erect, the leaves narrower and thinner than in *R. idaeus vulgatus.* From this variety the American cultivated red raspberries are derived.

7a. Forma *albus* Fuller. Fernald *Rhodora* **21**:96. 1919.

R. strigosus var. *albus.* Fuller in Bailey *Cyc. Am. Hort.* 1582. 1902. Fruits amber-white.

New Hampshire.

7b. Forma *tonsus.* Fernald *Rhodora* **21**:96. 1919. Canes glabrous, without bristles

Eastern Canada, New England.

8. **Rubus idaeus** var. **peramoenus** Greene. Fernald *Rhodora* **21**:98. 1919.

Batidaea peramoena. Greene *Leaflets*, **1**:241. 1906.

R. peramoenus. Rydberg *N. Am. Fl.* **22**:446. 1913.

Canes erect, 1–2 m high, yellowish or brown, shining and glabrous, sparingly beset with slender bristles and almost unarmed when old. Leaves 3- to 5-foliolate, thin, green on both sides, only when young somewhat grayish tomentose beneath; petioles glabrous, bristly; leaflets of the flowering branches usually a little more tomentose beneath. Inflorescence short, few flowered; pedicels and calyx puberulent and glandular-hispid.

Western North America; eastern Oregon and Washington through northern Idaho to western Montana.

9. **Rubus idaeus** var. **viburnifolius** Greene n. comb.

Batidaea viburnifolia. Greene *Leaflets* **1**:242. 1906.

R. viburnifolius. Rydberg *N. Am. Fl.* **22**:446. 1913.

Similar to the last. Canes glabrous or puberulent and more or less densely bristly. Leaflets also green on both sides or somewhat tomentose underneath when young, but strongly veined beneath and more or less plicate.

Western North America; Alaska to the Mackenzie River and south to British Columbia, and perhaps to Wyoming and Utah.

10. **Rubus idaeus** var. **egglestonii** Blanchard. Fernald *Rhodora* **21**:97. 1919.

R. egglestonii. Blanchard *Torreya* **7**:140. 1907.

Similar in every way to *R. idaeus* var. *strigosus*, but the leaves of the new canes 3-foliolate and with roundish ovate or orbicular leaflets; the flowering branches with simple reniform-orbicular more or less 3-lobed leaves.

Eastern North America; Vermont, on limestone ledges and on dry rocky soil; rather rare. A most remarkable variety which corresponds to *R. idaeus obtusifolius* and to *R. leucodermis trinitatis*. A similar form may be expected from *R. occidentalis*, but has not yet been found.

11. **Rubus idaeus** var. **heterolasius.** Fernald *Rhodora* **21**:97. 1919.

New canes as well as the branches and inflorescence greenish, tomentose, glandular and prickly with variously mixed larger prickles and bristles; leaflets white tomentose beneath, finely crenate.

Eastern North America; Maine; rare.

12. **Rubus idaeus** var. **canadensis.** Richardson *Appendix* in *Frankl. Journey*, 1st Ed. 747. 1823; Fernald *Rhodora* **21**:97. 1919.

R. carolinianus. Rydberg *N. Am. Fl.* **22**:447. 1913.

R. subarcticus. Ibid. **22**:448. 1913.

Canes 0.5–1 m high, brownish, densely tomentose and densely beset with fine spreading bristles, bristles of various length, some slightly stronger, more or less intermixed with stalked glands. Leaves of the young canes 5- or 3-foliolate; stipules subulate, small; petioles, petiolules and midveins pubescent, hispid from bristles and stalked glands; leaflets similar to those of var. *strigosus*, but somewhat broader, firmer in texture and the terminal ones more cordate especially on the 3-foliolate leaves. Flowering branches and petioles almost glabrous; sparingly and shortly prickly and little glandular, leaves 3-foliolate, doubly toothed, the uppermost simple, narrow. Pedicels and calyx densely bristly and glandular.

Eastern Asia, North America; from Alaska to Labrador, south to Nantucket and Cape Cod, Massachusetts, and locally in Michigan, South Dakota, Colorado, and in the mountains of North Carolina; often on swampy ground. The United States Department of Agriculture distributed several strains of this variety *canadensis* which were collected in 1916 by Mr. M. J. Dorsey in various parts of Manitoba, Canada, and were chosen for their productiveness as well as for the size and flavor of the fruits. This variety has a large geographical area and varies considerably in the canes as to color, tomentum, and bristles, the shape and size of the leaflets, the amount of glandulosity, and bristles in the inflorescence. The following forms are worthy to be recorded, but they are not the only ones.

12a. Forma *caudatus* Robinson & Schrenk. Fernald *Rhodora* **21**:97. 1919.

R. strigosus var. *caudatus*. Robinson & Schrenk *Can. Rec. Sci.* **7**:14. 1896.

Leaflets much acuminate.

12b. Forma *eglandulosus* n. f.

Young canes densely grayish brown tomentose, with fine scattered bristles, smooth and brown at length. Leaves 3- to 5-foliolate; petioles tomentose with slender bristles, scarcely glandular; leaflets firmer in texture, terminal leaflets cordate, broadly ovate, more or less 3-lobed or lobately doubly toothed. Flowering branches almost entirely glabrous, and also the petioles, pedicels and calyx without prickles and glands; pedicels and calyx white tomentose; leaflets of flowering shoots pointed and finely doubly toothed.

Canada; Manitoba, Big George Island, Lake Winnipeg; large open areas on the eastern shore.

Plants more than 5 feet high (Dorsey *Invent. Seed & Pl. Imp.* No. 43197). Young canes very peculiarly distinct, the flowering shoots much like *R. idaeus vulgatus*.

13. **Rubus idaeus** var. **acalyphaceus** Greene. Fernald *Rhodora* **21**:98. 1919.

Batidaea acalyphacea. Greene *Leaflets* **1**:240. 1906.

Rubus acalyphaceus. Rydberg *N. Am. Fl.* **22**:448. 1913.

Young canes brown or purple, tomentose or pilose, densely bristly, some of the bristles stouter and stronger and flattened at the base. Leaves of the young canes 3- to 5-foliolate; petioles, petiolules and midveins pubescent, prickly, bristly and glandular as well as the peduncles, pedicels and calyx.

Western North America; from Nevada to Wyoming, Idaho, and Montana, in the mountains.

The cultivated varieties of red raspberries, as first grown in Europe, were of necessity *R. idaeus vulgatus*. When these were imported to America they did not grow as well as in their native country, and it was found that varieties raised from the indigenous *R. idaeus strigosus* were more satisfactory. At present American red raspberries show the influence of both the European and the American blood. Pure breds are scarce now, and hybrids prevail. Most of our varieties are crosses between European and American red raspberries, and in some supposedly pure reds a trace of *R. occidentalis* is found.

It is not always easy to determine to what botanical varieties of *R. idaeus* a given cultivated variety may belong. If there is no reliable account of its parentage, as is usually the case, one can only judge from the external characters. European varieties exhibit, of course, the characters of *R. idaeus vulgatus*, that is mostly pubescent flowering branches, mostly firm and broad leaflets, thickly white or silvery white tomentose beneath, felty

pedicels and calyx-lobes, variously armed with slender, slightly curved prickles, but without glands throughout. American varieties derived from *R. idaeus strigosus* have the flowering branches scarcely or very slightly pubescent, the leaflets usually narrower, more acuminate, thinner and not quite as silvery white beneath, the pedicels and the calyx-lobes have little or no white felt, but are more or less densely glandular bristly, and similar glands occur on other parts of the plants, chiefly on the petioles.

The varieties derived from a cross between *R. idaeus vulgatus* x *R. idaeus strigosus* are very numerous. They are variously mixed, but are usually less glandular and less felty in the infloresence. Where the influence of *R. occidentalis* is traceable it is shown by the glabrous flowering branches, the pointed, very sharply toothed leaflets of the inflorescence, often bluish white underneath, the rather stiff, glabrous pedicels with many reflexed or falcate prickles, and the terminal pedicels more or less densely clustered.

The hybrids between *Rubus occidentalis* and *R. idaeus* var. *strigosus* were named

R. neglectus. Peck *Ann. Rpt. N. Y. State Cab.* **22**:53. 1869. Britton & Brown *Ill. Fl.* **2**:201, fig. 1895. 1897; Bailey *Ev. Nat. Fruits* 291, fig. 56. 1898; Bailey *Stand. Cyc. Hort.* **5**:3028, fig. 3494. 1916; Bailey *Gent. Herb.* **1**:149. 1923; Rydberg *N. Am. Fl.* **22**:443. 1913.

Purple Raspberries.— Canes much like those of *R. occidentalis*, prickly, but not bristly, arching and rooting from the tip. Leaves variable, pedate or pinnate, or pedate and pinnate or trifoliolate, leaflets sharply doubly toothed; the terminal leaflet usually lobately dentate above the middle as in *R. occidentalis*. Flowering branches glabrous. Inflorescence mostly intermediate, flowers in axillar and terminal corymbs; pedicels rather stiff, more or less felty, prickly, prickles recurved as in *R. occidentalis*, occasionally with a few glands; sepals more spreading. Fruit dark red.

The plants of this hybrid group vary so much that it is hardly advisable to retain a specific name for them. Sometimes they resemble one parent; sometimes the other. Some are crosses between *R. idaeus vulgatus* and *R. occidentalis*. Pomologically they are of great importance as a very productive race of raspberries.

Subgenus XII. **Eubatus**. Focke *Abh. Nat. Ver. Bremen* **4**:148. 1874; Focke *Spec. Rub.* **3**:48. 1914.

Shrubs, canes mostly biennial, erect or prostrate, variously armed; leaves digitately or pedately 3- to 5-foliolate. Drupelets uniting with the core and dehiscing together from the receptacles; known as dewberries and blackberries.

DEWBERRIES AND BLACKBERRIES

This subgenus inhabits the temperate regions of northwestern Asia, Europe, northern Africa, North America, and along the mountains in South America. It is abundantly rich in individuals and forms in Europe and northeastern America. This subgenus presents the greatest difficulties to the botanist. The various species with their numerous satelites, variously considered as subspecies, microspecies, varieties, forms, and hybrids, can be grouped in a number of series, which, if once understood, are in most cases readily distinguished. It must not be forgotten, however, that the many individual variations and the intermediate hybrid forms make it difficult to work out under each of these series satisfactory keys.

A. Plants with creeping or prostrate canes. Leaves often 3-foliolate. Inflorescence usually few flowered or flowers at least never panicled (**Dewberries**)
  B. Plants more prickly, prickles sometimes mixed with bristles
    C. Canes glaucous with a bloom
      D. Flowers bisexual, with perfect stamens and pistils. Berries rarely perfect, usually only a few drupelets maturing, the others abortive. European-Asiatic species.....Series 1: *Caesii*
      DD. Flowers usually with one sex only perfect. Berries always perfect, composed of many drupelets. Pacific species. Californian Dewberries.....
      Series 2: *Ursini*
    CC. Canes not glaucous
      D. Canes with broad, more or less ovate leaflets, without bristles. Foliage deciduous (Northeastern Dewberries).....Series 3: *Flagellares*
      DD. Canes with narrower, more lanceolate leaflets, and often with bristles between the prickles. Foliage often persistent (Southeastern Dewberries).....
      Series 4: *Triviales*
  BB. Plants with numerous fine retrorse bristles and a few prickles or none.....
  Series 5: *Hispidi*
AA. Plants with more or less erect canes, often tall, nodding or arching at the top, sometimes more so the second year, but not really prostrate, more or less angular. Leaves mostly digitately or pedately 5-foliolate. Inflorescence more or less panicled (**Blackberries**)
  B. Plants with setose bristles on canes and petioles; canes often decumbent or prostrate the second year.....Series 6: *Setosi*
  BB. Plants not setose in the same way
    C. Leaves white or grayish tomentose underneath
      D. Leaves more or less oblong or even narrower. American plants.....
      Series 7: *Cuneifolii*
      DD. Leaves more or less ovate or roundish. European plants..Series 13: *Fruticosi*
    CC. Leaves more or less green underneath
      D. Canes unarmed or only with a few prickles; plants almost glabrous and not glandular; leaves thin.....Series 8: *Canadenses*
      DD. Canes armed with more or less stout prickles; plants mostly more or less pubescent

E. Inflorescence panicled, richly branched, very prickly..Series 13: *Fruticosi*
EE. Inflorescence usually racemose or the lower peduncles sometimes branched
F. Inflorescence elongate, without leaf-like bracts or only with a few at the base, usually with numerous stalked glands.....Series 9: *Alleghenienses*
FF. Inflorescence less elongate corymbose and often with leaf-like bracts higher up, usually not glandular
G. Leaflets of the flowering branches acute or acuminate
H. Leaflets of the canes usually narrow, acute; canes sharply angular and deeply furrowed; inflorescence not leafy....Series 10: *Arguti*
HH. Leaflets of the canes usually broad and roundish; canes more or less terete when old; inflorescence decidedly leafy...Series 11: *Frondosi*
GG. Leaflets of the flowering branches short, obtuse or roundish.....
Series 12: *Floridi*

Series 1. **Caesii.** Focke *Spec. Rub.* **3**:252. 1914, as subsection.

Rubus caesius. Linnaeus *Sp. Pl.* 493. 1753; Focke *Spec. Rub.* **3**:253. 1914; Bailey *Gent. Herb.* **1**:153. 1923.

R. dumetorum Hort. Bailey *Stand. Cyc. Hort.* **5**:3033, fig. 506. 1916.

Sarmentose shrub, canes erect at first but soon curving down and decumbent or subscandent among shrubs or creeping and rooting on open ground, terete, usually glabrous, with a dense white bloom and numerous recurved, small prickles, sometimes undermixed with some rare short-stalked glands. Leaves 3-foliolate; petioles and mainveins prickly, puberulous and sparingly glandular, stipules lanceolate glandular-ciliate. Leaflets very variable in shape, the lower ones sessile or shortly stalked, obliquely ovate and sublobed on the lower, broader part the terminal leaflet stalked, ovate or rhomboid-ovate, subcordate at the base, all obtuse or pointed, sharply, doubly or incisedly serrate, rather thin, bright green, pubescent at least beneath. Flowering branches slender, puberulous, variously glandular and prickly; flowers fascicled, terminal and from axillary peduncles; calyx-lobes ovate, long pointed, more or less glandular, petals broadly elliptical, white. Fruit usually imperfect, composed of a few large, black drupelets with a glaucous hue.

Europe; from the Mediterranean to Scandinavia, everywhere common, in northwestern Asia as far as the Altai Mountains. Introduced into the United States by landscape gardeners as a ground cover for which it is well adapted. It is a very variable species, according to locality. The fruit is pleasant and not always imperfect, and as it flowers from spring to fall it is perhaps worthy the attention of the hybridizer. Spontaneous hybrids with other species, also with *R. idaeus*, are not uncommon in Europe.

Series 2. **Ursini.** Rydberg *N. Am. Fl.* **22**:429, 433. 1913; Focke *Spec. Rub.* **3**:302. 1914.

Vitifolii. Bailey *Gent. Herb.* **1**:153. 1923.

Vigorous shrubs with running, climbing or procumbent, terete canes, propagating from the tips; leaves usually 3-foliolate, or 5-foliolately pinnate, or pedate, often on the same cane. Flowers rarely hermaphrodite, usually by abortion either staminate or pistillate, the staminate flowers mostly showier, and larger. Pedicels and calyx densely and adpressedly

pubescent, with more or less numerous, slender, patent bristles and sometimes with stalked glands; calyx-lobes narrow, acuminate, often with pinnately cut tips, strongly reflexed during the time of flowering. Fruit mostly somewhat elongate, smooth or pubescent, with erect sepals.

The *Ursini-Rubus* are all natives of the Pacific Coast, extending eastward to Idaho. They form an extremely variable group, all considered as one species by Focke, while five species have been recognized by Rydberg out of which three species are admitted here. The range of variation is such, however, that it is often difficult to say where one species ends and the next begins. The available herbarium material is insufficient as it usually lacks the characteristic new canes taken from the same plant. A satisfactory state of taxonomy can only be reached when all the region has been carefully explored and reliable material has been collected. Even of the three historical species of this group, *R. vitifolius*, *R. ursinus*, and *R. macropetalus*, only flowering branchlets have been collected. The *Ursini* are of great pomological importance as they form the Pacific Coast region dewberries.

A. Flowers usually either staminate or pistillate only, rarely hermaphrodite
  B. Canes usually glabrous or thinly pubescent, often glaucous, with scattered often remote hooked prickles. Leaves thin, green on both sides, leaflets irregularly toothed, mostly pointed. Pedicels, calyx, and calyx-lobes with more or less numerous stalked glands. Fruits mostly glabrous.....*R. macropetalus*
  BB. Canes varying from slightly pubescent to tomentose; prickles numerous and densely set, usually slender and straight or only slightly curved, mostly smaller ones between them. Leaves pubescent or more or less grayish tomentose beneath. Leaflets usually more obtuse. Pedicels and calyx very rarely with glands
    C. Canes pubescent, often becoming almost glabrous. Leaves glabrescent; the middle ones on the flowering shoots 3-lobed.....*R. vitifolius*
    CC. Canes tomentose, rarely becoming glabrous. Leaves grayish tomentose beneath; the middle ones on the flowering shoots 3-foliolate.....*R. ursinus*
AA. Flowers hermaphrodite, i.e., with perfect stamens and pistils
  B. Leaflets broad, roundish, obtuse, grayish tomentose beneath; teeth roundish.... *R. loganobaccus*
  BB. Leaflets sharply pointed, green on both sides; teeth sharp, lanceolate..*R. titanus*

Rubus macropetalus. Douglas in Hooker *Fl. Bor. Amer.* **1**:178, Pl. 59. 1832; Rydberg *N. Am. Fl.* **22**:460. 1913; Bailey *Stand. Cyc. Hort.* **5**:3033. 1916; Bailey *Gent. Herb.* **1**:154. 1923.

R. vitifolius. Card *Bush-Fr.* 332, fig. 64. 1898; Bailey *Ev. Nat. Fruits* 355, fig. 78. 1898.

Canes terete, usually and at least in the second year glabrous, rarely thinly puberulous, green or reddish, often with a glaucous bloom, remotely beset with more or less hooked, small prickles from a broadened base. Leaves 3-foliolate or pinnately or pedately 5-foliolate; stipules linear-subulate, hirsute or glandular; petioles, petiolules and midveins with

hooked prickles, pubescent or glabrescent; leaflets more or less ovate, acute, irregularly or lobately doubly sharply toothed, green on both sides, with scattered hairs above and often more densely pubescent beneath; terminal leaflet much larger, mostly with cordate or also with roundish base. Flowering branches varying in length from 5–25 cm, pubescent, slightly angular, beset with weak prickles. Leaves 3-foliolate; stipules linear-lanceolate, lateral leaflets sessile, all with a roundish base, and deeply often lobately toothed; upper ones simple, ovate or cordate-ovate. Flowers corymbose, few to 10 or more, terminal or from the upper axils. Pedicels mostly forked, of various length, densely velvety pubescent, more or less densely beset with spreading or slightly reflexed bristly prickles, often undermixed with dark-stalked glands. Calyx and the deltoid-lanceolate, long-pointed calyx-lobes villous-tomentose, with more or less numerous spreading bristles and glands; petals of the staminate flowers almost elliptic, 15–18 mm long, white, those of the pistillate flowers smaller. Fruit roundish or elongate, black, sweet; drupelets glabrous or puberulous.

British Columbia to south California and eastward to Idaho; chiefly along the coast, in the San Bernardino Mountains up to 3000 feet; first discovered by Douglas on banks of rivers and in low woods in the valley of the Columbia. It is a strong shrub with deep-growing roots and in places is a troublesome weed. It flowers from March to July, according to the locality. There is great variation in shape and size of the leaves, their dentation, and the degree of hairiness and the presence or absence of prickles and glands on the pedicels and calyx.

The following pomological varieties belong to *R. macropetalus:* Belle of Washington, Cazadero, Humboldt, Skagit Chief, and Washington Climbing.

R. helleri. Rydberg *N. Am. Fl.* **22**:460. 1913.

This is a form with smaller and more obtuse leaflets occurring in Washington and Vancouver Island.

Rubus vitifolius. Cham. & Schlecht. *Linnaea* **2**:10. 1827; Schneider *Ill. Hdb. Laubh.* **1**:508. 1905; Rydberg *N. Am. Fl.* **22**:459. 1913; Bailey *Gent. Herb.* **1**:154. 1923.

R. ursinus var. *vitifolius.* Focke *Spec. Rub.* **2**:303. 1914.

Canes terete, pubescent, at length glabrescent, often glaucous, with scattered, slender, straight or slightly curved prickles. Leaves of turions 3-foliolate or 3-lobed; petioles, petiolules and midveins pubescent and prickly; stipules lanceolate-subulate, hirsute; leaflets shortly pointed or obtuse, doubly or irregularly dentate, slightly hairy or glabrescent, terminal leaflet or lobe larger. Flowering branches varying in length, angular, pubescent and with scattered, straight prickles. Lower leaves 3-foliolate, the middle ones or all simple, somewhat 3-lobed or roundish, irregularly or doubly dentate, teeth usually large. Flowers corymbose, 2–5, on rather long pedicels; pedicels pubescent with more or less numerous, spreading, yellowish prickles; calyx and the long acuminate often crenately tipped calyx-lobes strongly pubescent and bristly, but not glandular. Petals of the staminate flowers large, oblong, white.

Oregon to central California; originally collected near San Francisco by Adalbert von Chamisso.

Rubus ursinus. Cham. & Schlecht. *Linnaea* **2**:11. 1827; Rydberg *N. Am. Fl.* **22**:459. 1913; Bailey *Gent. Herb.* **1**:154. 1923.

Canes tomentose, terete, with numerous, slender, straight prickles. Leaves 3-foliolate, grayish tomentose beneath with adpressed hairs above, leaflets broadly ovate, roundish, doubly irregularly toothed; petioles tomentose and prickly, also the petiolules and the midveins. Flowering branches angular, tomentose, and with patent slender prickles; stipules lanceolate, hirsute; leaves 3-foliolate, lateral leaflets obliquely ovate, obtuse, almost sessile, the terminal ones subcordate, roundish ovate, bluntly pointed; the uppermost leaves simple, cordate-ovate or somewhat 3-lobed. Flowers corymbose, 3–5, on long pedicels; pedicels grayish tomentose like the calyx and with spreading, slender prickles, usually without glands; calyx-lobes ovate-lanceolate with a long often crenate tip, grayish, inside whitish tomentose. Petals of the staminate flowers large, oblong, white.

California; first collected by Adalbert von Chamisso. This is the very large and partially erect form so common about most thickets at the lower levels. According to Bailey, Aughinbaugh, once much cultivated, belongs either to this species or to *R. vitifolius*.

Rubus loganobaccus. Bailey *Gent. Herb.* **1**:155. 1923.

Canes stout, terete, tomentose at length glabrescent, densely beset with straight patent prickles. Leaves 3- to 5-foliolate, petioles and petiolules densely pubescent, prickly, like most of the veins beneath; stipules subulate, hirsute; lower leaflets sessile, obliquely ovate, obtuse, terminal one roundish cordate or subtrilobate, obtuse or bluntly pointed, irregularly or doubly toothed, rather thick, dark green above with a few scattered hairs, densely grayish tomentose beneath. Flowering branches copiously prickly; leaves 3-foliolate, similar to those of the turions, only smaller; the uppermost simple, cordate. Flowers corymbose, large, bisexual, pedicels long, stout, tomentose and with patent prickles; calyx and the ovate-lanceolate, long-pointed calyx-lobes pubescent and prickly; petals large, white. Fruit elongate, red, acidulous; drupelets tomentose.

Garden origin; only known as a cultivated plant; said to have originated in the garden of Judge J. H. Logan, Santa Cruz, California. The loganberry was at first said to be a hybrid between the "common Californian dewberry" and a raspberry. There is, however, no trace of a raspberry in the character of this plant. Most likely it is a mutant offspring of *R. ursinus*, from which it differs only in slight details and chiefly by its bisexual flowers, but such can occasionally also be observed on *R. ursinus*. A cross was raised at Geneva between the red raspberry Herbert and the loganberry.

Rubus titanus. Bailey MSS.

Canes extremely robust, many yards long, terete, pubescent, glabrous later on, beset with numerous, stout, straight or hooked prickles from a broad base, with smaller ones

between them. Leaves 3-foliolate, petioles and petiolules pubescent, very prickly, also along the midveins; stipules lanceolate-subulate, hirsute, lateral leaflets shortly stalked, obliquely ovate, acute, often with a small lower lobe, terminal leaflet ovate to ovate-lanceolate, rather long pointed, all rather thin, green on both sides, hairy when young but soon glabrescent especially above, doubly and sharply serrate-dentate, the teeth more or less lanceolate. Flowering branches more or less tomentose, angular, prickly; lower leaves 3-foliolate, upper one 3-lobed, the uppermost simple, cordate-ovate, all more or less pointed. Flowers axillar and terminal in a loose corymb, large, bisexual; pedicels tomentose, like the calyx with patent slender prickles, eglandular; calyx-lobes ovate-lanceolate with long leafy or pinnate tips, not prickly; petals roundish oblong, white. Fruit black, sweet, elongate.

Garden origin; only known as cultivated plants, said to have originated in the garden of Judge J. H. Logan, Santa Cruz, California, and now much grown under the name of "Mammoth." Supposed to be a hybrid, but in reality nothing is known about its origin. It is also known as Lowberry. Crosses were made at Geneva, between Mammoth and Cuthbert (red raspberry), between Mammoth and Herbert (red raspberry), between Mammoth and Agawam (blackberry), between Mammoth and Snyder (blackberry), and between Mammoth and Nanticoke (blackberry).

Var. **espinatus.** Bailey MSS.

Canes almost smooth and without prickles; petioles, petiolules and midveins with only a few and small prickles. Fruit like those of *R. titanus.*

This variety is said to have been discovered in the mountain pass of Tuolumne County, California, and is much grown under the names of "Mammoth Thornless" or "Cory" or "Cory Thornless."

Series 3. **Flagellares.** Bailey *Gent. Herb.* 1:157. 1923.

Canes prostrate or procumbent, mostly glabrous, and with scattered recurved or hooked prickles. Leaves on turions 3- to 5-foliolate, leaflets more or less ovate or obovate, glabrescent. Flowering branches and leaves usually somewhat more pubescent, slightly prickly; glands absent, except perhaps in hybrids. Calyx-lobes often with foliaceous tips.

A. Canes more or less terete
  B. Pedicels exceeding the leaves, elongate, the lower ones overtopping the terminal one; flowers few, often rather large.....*R. flagellaris*
  BB. Pedicels not exceeding the leaves. Flowers more corymbiform
    C. Canes prostrate, more prickly; leaves more obtuse; flowers middle sized.....*R. arenicola*
    CC. Canes procumbent; leaves more pointed, those of the flowering shoots plicate between the close veins; flowers small.....*R. plicatifolius*
AA. Canes strongly angular and furrowed, the prickles strong, placed along the angles; pedicels overtopping the leaves.....*R. velox*

Rubus flagellaris. Willdenow *En. Pl.* 549. 1809; Rydberg *N. Am. Fl.* 22:473. 1911; Bailey *Gent. Herb.* 1:157. 1923.

R. procumbens. Muhl. apud auct.: Focke *Spec. Rub.* **3**:81 (305). 1914; Bailey *Stand. Cyc. Hort.* **5**:3031. 1916.

R. canadensis T. & G. *Fl. N. Am.* **1**:455. 1840.

R. Baileyanus. Britton *Mem. Torrey Bot. Club* **4**:185. 1894.

R. villosus. Card *Bush-Fr.* 329. 1898; Bailey *Ev. Nat. Fruits* 371. 1898; Gray *New Man.* 7th Ed. 492. 1911; not *R. villosus* Thunb. 1784; not *R. villosus* Ait. 1789.

R. subuniflorus. Rydberg in Britton *Man.* 497. 1901; Rydberg *N. Am. Fl.* **22**:474. 1913.

R. aboriginum. Rydberg *N. Am. Fl.* **22**:473. 1913.

Common Dewberry.— Low shrub, canes prostrate, terete, several feet long, rooting at the tip, glabrescent, with numerous, irregularly scattered, small, strongly hooked prickles from a broad compressed base. Leaves pedately 3- to 5-foliolate, bright green with scattered hairs and pubescent along the veins on both sides, firm, sharply and irregularly often doubly toothed, teeth lanceolate, mucronate; lower and lateral leaflets sessile or almost so, obliquely ovate or rhomboid-acuminate, terminal leaflet distinctly stalked, broadly or roundish ovate, subcordate suddenly contracted into a long point, and coarsely toothed; petiole and petiolules pubescent, like the midveins with scattered, hooked prickles; petioles shorter than the leaflets; stipules lanceolate, cuspidate, puberulous and ciliate. Flowering branches erect, 10–30 cm long, slightly angular and puberulous, and with scattered, fine prickles. Leaves 3-foliolate, puberulous with scattered hairs, especially along the veins, sharply doubly toothed; leaflets ovate or rhomboid, tapering at both ends: the uppermost leaves simple, variously lanceolate pointed or broader and 2- to 3-lobed. Flowers terminal or axillary, 1–5 or more, pedicels exceeding the leaves, the terminal one usually the shortest, puberulous and with scattered, spreading prickles. Calyx-lobes ovate, shortly pointed, pubescent; petals longer, obovate; stamens and pistils numerous. Fruit roundish, calyx-lobes adpressed.

Eastern North America; from Maine to the Rocky Mountains and south to the Gulf of Mexico, mostly on dry open places, roadsides, banks, and often in sandy soil. A very variable plant according to locality, exposure to sunlight, and soil, especially in the flowering shoots and their leaves. From one and the same individual very different looking flowering shoots may be collected, which by an inexperienced observer might easily be considered as belonging to different varieties or species.

To this species belongs the cultivated variety Lucretia Sister, Gardena, and according to Bailey probably also Windom.

R. flagellaris var. **roribaccus.** Bailey *Gent. Herb.* **1**:160. 1923.

R. canadensis var. *roribaccus.* Bailey *Am. Gard.* **11**:642. 1890.

R. villosus var. *roribaccus.* Bailey *Ev. Nat. Fruits* 373. 1898; Card *Bush-Fr.* 329. 1898.

R. roribaccus. Rydberg in Britton *Man.* 498. 1901.

R. procumbens roribaccus. Bailey *Stand. Cyc. Hort.* **5**:3031. 1916.

Canes more robust, longer, with less hooked stouter prickles; stipules linear-lanceolate; leaves more pubescent, terminal leaflet longer stalked. Flowering shoots 20–80 cm long, lower leaves 3-foliolate, leaflets ovate, pointed, upper ones simple, ovate, pointed, rounded or cordate at the base. Pedicels longer, stouter, well overtopping the leaves, flowers very large and showy; calyx-lobes ovate with a long often foliaceous tip; petals 2 cm long or more, obovate, clawed. Fruit oblong with numerous drupelets.

This is the cultivated Lucretia. Crosses were made at Geneva between Lucretia and Erie (blackberry), Lucretia and Ancient Briton (blackberry), between Rathbun (blackberry) and (Lucretia x Agawam), and also between Lucretia and Snyder (blackberry).

R. flagellaris var. **invisus.** Bailey *Gent. Herb.* **1**:161. 1923.

R. canadensis var. *invisus.* Bailey *Am. Gard.* **12**:83. 1891.

R. invisus. Britton *Mem. Torrey Bot. Club* **4**:115. 1893; Bailey *Ev. Nat. Fruits* 374. 1898; Bailey *Stand. Cyc. Hort.* **5**:3031. 1916; Card. *Bush-Fr.* 329. 1898.

Stems somewhat ascending but soon decumbent, not very prickly. Leaves light green, teeth of the leaflets, both on sterile and fertile branches, mostly simple, large and broadly rounded, shortly mucronate.

Central North America; apparently widely spread in western Missouri, Michigan, and Indiana. Here belong the formerly cultivated varieties Bartel, Never Fail, and General Grant. Plants from the southeastern states seem to represent a close and similar variety. To this seems to belong the cultivated variety Premo.

R. flagellaris var. **geophilus** Bailey.

R. geophilus. Blanchard *Rhodora* **8**:148. 1906.

Stems robust, similar to var. *roribaccus;* leaves rather large, more or less pubescent, jagged and very coarsely serrate; also the leaves of the fruiting branches large and very variable in shape, the simple uppermost broadly cordate-ovate, often more or less 3-lobed, larger than in most cases. Pedicels stout, long, prickly, overlapping the foliage; calyx-lobes often with long foliaceous often pinnately incised tips; petals obovate, over 2 cm long. Fruit remarkably large.

Eastern North America; from Maine to Texas. Here belongs the cultivated variety Mayes. A cross was made at Geneva between Kansas (black raspberry) and Mayes, and between Mayes and Agawam (blackberry).

R. flagellaris var. **michiganensis.** Bailey *Gent. Herb.* **1**:161. 1923.

R. villosus var. *michiganensis.* Card *Bush-Fr.* 329. 1898; Bailey *Ev. Nat. Fruits* 374. 1898.

Robust shrub, similar in habit to var. *geophilus*, but the leaflets with large, sharp, and deeply cut often falcate teeth or almost lacinate-dentate, lateral leaflets sessile. Flowering branches pubescent; leaves lacerate-dentate, pubescent especially on the back, 1- to 10-flowered.

East central North America; Michigan, Indiana.

R. arizonensis. Focke *Spec. Rub.* **3**:307. 1914.

R. oligospermus. Thornber ex Rydberg *N. Am. Fl.* **22**:470. 1913; not Sudre 1909.

Very similar to *R. flagellaris;* but floral branches only 5–10 cm long, with 3- to 5-foliolate leaves, 1–4 cm long, pubescent. Flowers 1–5, pedicels villous and with recurved prickles; sepals villous tomentose, petals 8–9 mm long. Fruits globose, 10–12 mm across with about 12–25 drupelets.

Arizona and south to Mexico; first collected by C. G. Pringle in the St. Catalina Mountains, Arizona, in 1881.

R. enslenii. Tratt. *Ros. Monogr.* **3**:63. 1823.

This is often cited in connection with *R. flagellaris*, but it is yet insufficiently known. The original specimen in the Vienna herbarium is a weak plantlet; its exact habitat is not known. Possibly plants grown near Biloxi, Mississippi, may represent this species.

Rubus arenicola. Blanchard *Rhodora* **8**:151. 1906; Bailey *Gent. Herb.* **1**:167. 1923.

Canes perfectly prostrate, obscurely angular or terete, glabrous, with numerous, slender, recurved prickles. Leaves 3-foliolate, the lower ones often 5-foliolate, rather regularly and sharply and often doubly toothed, dark green above and paler beneath, almost glabrous on both sides, except for the veins beneath; lower leaflets sessile, small, middle ones short stalked, obliquely broadly ovate, shortly pointed, terminal leaflet larger and longer stalked, roundish or cordate at the base; on 3-foliolate leaves the lower leaflets oblique or obscurely lobed on the outer side, and the terminal one mostly broadly obovate, suddenly contracted into a short point. Petioles and petiolules slightly pubescent and prickly; stipules narrowly lanceolate, acute. Flowering branches pubescent, sparingly prickly; leaves 3-foliolate, leaflets obovate, obtuse or shortly pointed, doubly toothed. Flowers 5–10 or more, corymbiform; pedicels pubescent, sparingly prickly; calyx pubescent, lobes ovate, cuspidate; petals longer, obovate; stamens and pistils numerous. Berries roundish oblong.

Eastern North America; Nova Scotia to Massachusetts. There are no cultivated forms of this species as yet.

Rubus plicatifolius. Blanchard *Rhodora* **8**:149. 1906; Bailey *Gent. Herb.* **1**:167. 1923.

R. villosus. Aiton *Hort. Kew.* **2**:210. 1789; not Thunberg 1784.

Canes procumbent, terete, glabrous, with scattered, slender, recurved prickles. Leaves 5-foliolate, bright green and glabrescent on both sides, except for the veins beneath, sharply and doubly serrately toothed; lower leaflets sessile, obovate, contracted into a more or less long point, terminal one stalked, longer and broader and more ovate, rounded or subcordate at the base; petioles long, glabrescent like the petiolules and the midveins, with scattered, recurved prickles; stipules long, lanceolate-linear, acute. Flowering branches slender, pubescent, sparingly prickly; leaves 3-foliolate, finely doubly toothed, paler and pubescent underneath, with close, fine, prominent veins and the blade usually finely depressed or falted between them. Flowers corymbiform, 5–7 or more or less, rather small; pedicels

slender, scarcely prickly, slightly pubescent; calyx pubescent, lobes ovate, cuspidate, white tomentose inside; petals narrowly obovate.

Eastern North America. No cultivated variety is referable to this species.

Rubus velox. Bailey *Gent. Herb.* 1:168. 1923.

Vigorous shrub, canes soon procumbent and creeping on the ground, several feet long, angular and furrowed, pubescent at first, along the angles with scattered, moderately stout, fine, somewhat recurved prickles from a broad base. Leaves 5-foliolate, rather thin, yellowish green, glabrescent above, underneath paler green and finely pubescent, especially along the veins, simply or doubly serrate; leaflets ovate-lanceolate, pointed, roundish or subcordate at the base; lower leaflets subsessile, middle ones stalked, terminal leaflets larger, 7–10 cm long and 5 cm wide or more, more oblong, longer stalked, with about 10–12 veins on each side; petioles, rhachis, and midveins pubescent, with several hooked prickles; stipules narrowly linear or subulate. Flowering branches erect, angular like the petioles, and pubescent, sparingly prickly, 15–20 cm long; leaves 3-foliolate, smaller and narrower towards the base, the uppermost simple, sometimes 3-lobed, with a broad, roundish or subcordate base. Flowers 1–4, axillar, pedicels not or scarcely exceeding the leaves, pubescent, almost without prickles. Calyx-lobes pubescent, tomentose inside, ovate, cuspidate, often with a large foliaceus-lobed tip. Petals oblong, 12–15 mm long; stamens and pistils numerous. Fruit oblong, 25 mm long or more, black.

Southwestern United States; Texas. The type of this species is the "blackberry dewberry" McDonald. Sonderegger Earliest comes very near to it as also does Honey Coreless. Dallas has deeper doubly serrate leaflets, very pubescent underneath, and the same is the case with the varieties Early Wonder and Texas Early; their leaflets, however, are shorter and rounder. Other varieties belonging to this species are Spaulding and Sorsby.

Series 4. **Triviales.** Rydberg *N. Am. Fl.* 22:435. 1913.

Stems prostrate, slender, usually bristly and prickly. Leaves 3- to 5-foliolate, leaflets narrowly ovate to lanceolate, usually persistent, shining green and glabrous. Floral branches short, erect; flowers rather large, solitary or 3–5 or more together, on long, erect pedicels well above the foliage; prickles on stems, petioles and pedicels with a flattened base, more or less hooked.

About five species, all natives of the southeastern United States. Several cultivated varieties belong to this group and no doubt the pomological importance of it will increase in the future.

A. Canes bristly and prickly
  B. Leaves simply serrate
    C. Flowering shoots with small obovate-obtuse leaflets; flowers usually solitary or 1–3 ..... *R. trivialis*
    CC. Flowering shoots with long, narrow, long-pointed leaflets; flowers mostly solitary *R. mississippianus*

BB. Leaves doubly serrate

C. Stems with reddish gland-bearing bristles; leaflets firm and thick, oval or oboval; flowers 3–7 together.....*R. rubrisetus*

CC. Stems bristly but not glandular; leaflets thinner, elliptical; flowers 1–4 together *R. continentalis*

AA. Canes not bristly, only with prickles. Leaflets lanceolate, simply serrate, shining green; flowers 2–6 together.....*R. lucidus*

Rubus trivialis. Michaux *Fl. Bor. Amer.* **1**:296. 1803; Card *Bush-Fr.* 330. 1898; Bailey *Ev. Nat. Fruits* 376. 1898; Rydberg *N. Am. Fl.* **22**:479. 1913; Focke *Spec. Rub.* **3**:84. 1914; Bailey *Stand. Cyc. Hort.* **5**:3032. 1916; Bailey *Gent. Herb.* **1**:170. 1923.

Stems prostrate, 1–2 m long, terete, slender, brownish red, with very numerous bristles mixed with scattered, hooked prickles from a broad base. Leaves of the turions 3- to 5-foliolate, firm, glabrous on both sides, dark and shining green above, pale green beneath, simply serrate, teeth mucronate; leaflets lanceolate or oblanceolate, tapering at both ends, the lower ones shortly stalked or sessile, the terminal one stalked and longer, about 5 cm long and 2 cm wide; petiole and petiolules brownish red, bristly and prickly; stipules small, subulate. Flowering branches very short, with about 3 approximate 3-foliolate leaves, much smaller and more obtuse than those of the turions; petioles puberulous, sparingly prickly and without bristles. Flowers solitary or 2–3, pedicels 3–5 cm long, erect, well above the leaves, puberulous, with small, straight or curved prickles; occasionally also with soft gland-topped bristles. Calyx pubescent, lobes ovate, shortly cuspidate, white tomentose inside; petals obovate, 15 mm long; stamens and pistils numerous; fruit oblong, drupelets numerous, glabrous, black, calyx-lobes reflexed.

Southeastern United States; dry fields from Virginia to Florida, Texas, and Oklahoma. There are many varieties cultivated which probably are this species taken from the wild into gardens. The variety San Jacinto grown at this Station is one of them. The White Dewberry is also one of these cultivated forms. It differs by having slightly angular canes, numerous yellowish gland-tipped bristles, very prickly and bristly petioles, more oblong, broader, and less pointed leaflets, which are of a paler, not shining green. The flowers are produced on straight, densely glandular, bristly and prickly pedicels, 10–15 cm long; sepals ovate-deltoid, pubescent, tomentose inside. This may possibly belong to a different yet undescribed species.

R. rubrisetus, Rydberg in Britton *Man. Fl. Northeast. St etc.* 497, from Louisiana to Missouri, comes near to *R. trivialis*, but it has more oval or oboval, irregularly serrate leaflets and the flowers 3–7 together in corymbs; pedicels glandular bristly.

Rubus mississippianus. Bailey *Gent. Herb.* **1**:171. 1923.

Canes prostrate, long creeping, thin and slender, glabrous, bristly and with slender, curved prickles. Leaves of the flowering canes 3- to 5-foliolate, shining green above,

glabrous or slightly pubescent along the veins underneath; leaflets oblong-lanceolate, acuminate, the terminal ones 3–5 cm long and 1–1.5 cm wide, sharply and simply serrate; petioles slender, prickly. Flowering shoots very short; flowers about 2–2.5 cm across, usually solitary, well above the leaves; pedicels slender, 7–10 cm long, prickly. Petals obovate, obtuse.

Southeastern United States; Mississippi, near Biloxi. There are no cultivated varieties known.

Rubus lucidus. Rydberg *N. Am. Fl.* **22**:479. 1913; Bailey *Gent. Herb.* **1**:173. 1923.

Canes trailing, 1–2 m long, slender, terete, brown or reddish, with flattened, recurved prickles but without bristles. Leaves mostly 5-foliolate, dark green and shining, glabrous except on the midveins beneath, regular and simply serrate, leaflets lanceolate, acute; petioles 2–4 cm long, prickly. Flowering shoots short, sparingly pubescent or glabrate, with 3-foliolate leaves. Flowers corymbose, 2–6 together; pedicels slightly pubescent, prickly; calyx tomentose, lobes ovate or ovate-lanceolate, cuspidate, white tomentose inside; petals obovate, 12–15 mm long. Fruit elongate, 8–10 mm long, drupelets small and rather dry.

Southeastern United States; South Carolina to Florida, west to Mississippi. No cultivated variety is known of this species.

Rubus continentalis. Bailey *Gent. Herb.* **1**:173. 1923.

R. carpinifolius. Rydberg in Small *Fl. Southeast. U. S.* 519. 1913; not Whe. 1824, nor Godron, nor Blox.

R. hispidus subsp. (?) *continentalis.* Focke *Spec. Rub.* **3**:86. 1914.

Canes slender, trailing, 1–2 m long, more or less densely bristly and prickly, prickles recurved, small. Leaves 5-foliolate, leaflets elliptic or elliptic-ovate, acute or obtuse at both ends, 2–6 cm long, thin, glabrous on both sides, doubly serrate, teeth ovate, rather blunt; petioles and midvein prickly. Flowers 1–4, pedicels slender, 3–7 cm long, prickly and somewhat glandular-hispid. Calyx puberulous, lobes ovate-lanceolate; petals oval, white, 1 cm long. Fruit elongate, 1–2 cm long; drupelets numerous, glabrous.

Southern central United States; southern Illinois to Oklahoma, Texas, and Louisiana. Not yet in cultivation.

Series 5. **Hispidi.** Bailey *Gent. Herb.* **1**:173. 1923.

Plants trailing on the ground; canes terete, with numerous, fine, retrorse bristles and a few prickles or none. Leaves 3- to 5-foliolate. Flowering branches erect, 3-foliolate; flowers corymbose, small. The *Hispidi* are of little importance as fruit plants and so far scarcely offer promising features for future development.

Rubus hispidus. Linnaeus *Spec. Pl.* 493. 1753; Card *Bush-Fr.* 334. 1898; Bailey *Ev. Nat. Fruits* 377, fig. 73. 1898; Gray *New Man.* 7th Ed. 492. 1911; Rydberg *N. Am. Fl.* **22**:478. 1913; Focke *Spec. Rub.* **3**:84, (310). 1914; Bailey *Stand. Cyc. Hort.* **5**:3032. 1916; Bailey *Gent. Herb.* **1**:173. 1923.

R. obovalis. Michaux *Fl. Bor. Am.* **1**:298. 1803.

R. sempervirens. Bigelow *Fl. Bost.* 2d Ed. 201. 1824.

Running Swamp Blackberry.— Stems prostrate, trailing on the ground and rooting at the tip, slender, terete, glabrous, more or less densely beset with slender, recurved bristles, occasionally intermixed with a few stouter prickles. Leaves 3- to 5-foliolate; leaflets firm, dark green above, more or less persistent over the winter, glabrous on both sides, regularly simply or doubly toothed or serrate, obovate, shortly pointed or obtuse, attenuate towards and variously rounded at the base; in 3-foliolate leaves, the lower leaflets short stalked, oblique with lateral lobes, the terminal ones longer stalked and larger, rhombic-obovate. Petioles about as long or longer, glabrous and with recurved bristles, also the petiolules and the midveins; stipules linear-lanceolate, or almost subulate, acuminate. Flowering branches erect, glabrous, sparingly bristly, 15–30 cm long, leaves 3-foliolate, similar to those of the turions, the uppermost ones simple. Flowers rather small, 5–9 corymbiform and 1–3 lower axillary ones; pedicels 3–5 times as long as the calyx, pubescent and with long, slender, scattered bristles, some of them with glands. Calyx pubescent, lobes ovate-deltoid, cuspidate; petals white, 8 mm long. Berry with about 10–20 glabrous drupelets, dark red or purple.

Eastern North America; from Nova Scotia south to Georgia, west to Michigan, in damp woods, meadows, mostly in dense carpets. Also this species is rather variable. There occur some very robust forms, larger in all their parts. They have been named var. *major;* there exist, however, all degrees of intermediate forms. Normally the leaflets are rather obtuse or short pointed; some plants, however, have them decidedly pointed. The most pronounced of them has been named *R. hispidus* var. *blanchardianus* Bailey. It is a native of southern Vermont. Besides these forms, Blanchard segregated three allied species, which he found in Vermont.

Rubus cubitans. Blanchard, *Torreya* **6**:148. 1906.

Plants not bristly nor glandular; leaves 5-foliolate, glabrous; leaflets narrowly oval to oval, wedge-shaped or at least narrowed towards the base.

Rubus trifrons. Blanchard *Amer. Bot.* **11**:11. 1906.

New canes ascending or erect, bristly, without prickles; plants more or less glandular. Leaves mostly 3-foliolate.

Rubus jacens. Blanchard *Torreya* **6**:147. 1906.

R. semierectus. Blanchard *Rhodora* **8**:156. 1906.

New canes ascending or erect, bristly and prickly; leaves mostly 5-foliolate; pedicels often with a few stalked glands.

Rydberg considers the last three as hybrids of *R. hispidus* with *R. vermontanus* Blanch., one of the *Setosi* group. The latter, however, may perhaps be a hybrid with *R. plicatifolius.* Besides these there are other hybrids recorded with *R. argutus, R. allegheniensis,* and *R. canadensis.* Another interesting hybrid, *R. hispidus* x *R. pubescens,* was found in a wood near Lake Ontario, east of Youngstown:

Rubus urbanianus Berger* n. hybr.

Stems slender, procumbent, rooting at the tips, with scattered, recurved prickles. Leaves 3-foliolate, petioles slender, prickly, stipules subulate; leaflets thin, dull green and with a few scattered hairs above, paler underneath and pubescent along the veins, obliquely ovate, sharply pointed and irregularly doubly toothed, lateral ones sessile, terminal ones shortly stalked. Flowering branches and petioles pubescent, sparingly prickly; leaflets rhomboid-ovate, acute at both ends, ciliate. Flowers solitary, terminal, peduncles pubescent, sparingly prickly or unarmed, with one or two leaf-like simple bracts; calyx-lobes ovate, acuminate or cuspidate, tomentose, adpressed or spreading in fruit. Fruit roundish, red, with 8–10 rather large drupelets.

Intermediate between the parents. It has the stems, prickles, and stipules of *R. hispidus* and the shape, texture, and dentations of the leaves of *R. pubescens*. The inflorescence, too, is more that of *R. pubescens*. A similar hybrid does not seem to be known.

Series 6. **Setosi.** Bailey *Gent. Herb.* 1:176. 1923.

Canes at first erect or ascending and not over 1 m high, becoming decumbent or prostrate the second year, usually densely beset with fine not much pungent bristles, and usually without prickles. Leaves 5-foliolate; petioles bristly; leaflets glabrous or almost so, mostly sharply serrate, veins prominent underneath, impressed above, giving the leaflets a plicate appearance in the herbarium. Inflorescence shortly racemose; flowers small. Fruit hemispheric, drupelets not numerous, sour.

These blackberries of the *Setosi* group with their poor and sour fruits are of little interest to the pomologist. They are natives of the northeastern United States. The most outstanding species are *R. setosus* Bigel. and *R. vermontanus* Blanch.

Series 7. **Cuneifolii.** Bailey *Gent. Herb.* 1:180. 1923.

Erect shrubs, with stiff, angular, downy canes and stunted, more or less hooked prickles from a broad base. Leaflets firm, attenuate towards the base, and entire near the lower parts, densely grayish or whitish tomentose underneath. Pedicels stout, grayish felty like the calyx.

A group easily recognized by its habit and the nature of its stems and leaves. There are so far only two species known.

A. Leaflets more or less obovate-cuneate, grayish white on the back, simply serrate. *R. cuneifolius*

AA. Leaflets from oblanceolate to oblong-obovate, grayish on the back, sharply doubly toothed..... *R. probabilis*

Rubus cuneifolius. Pursh *Fl. Am. Sept.* 347. 1814; Card *Bush-Fr.* 327, fig. 62. 1898; Bailey *Ev. Nat. Fruits* 378, fig. 89. 1898; Gray *New Man.* 7th Ed. 491. 1911;

* Named in honor of George Urban, Jr., Buffalo, New York, much interested in horticulture, at whose summer camp the plant was found.

Rydberg *N. Am. Fl.* **22**:461. 1913; Focke *Spec. Rub.* **3**:(311) 87. 1914; Bailey *Gent. Herb.* **1**:180. 1923.

Sand Blackberry.— Erect half evergreen shrub or straggling and procumbent, 0.5–1.5 m high; stems or canes angular and furrowed, brown, finely downy, along the angles with scattered, stout, recurved or hooked prickles from a broad, flat base. Leaves of the turions 3- to 5-foliolate, rather firm, dark green and glabrescent above, densely felty from white interwoven hairs underneath; leaflets obovate or cuneate-obovate, obtuse or rounded at the top, cuneate at the base, 3–6 cm long, simply serrate with sharp, ovate teeth, entire near the base. Petioles, petiolules and midveins tomentose and with recurved prickles; stipules subulate. Flowering branches and pedicels tomentose and prickly; leaves 3-foliolate, uppermost simple, leaflets smaller, more roundish but with cuneate base. Flowers 3–7 together, corymbiform; pedicels short and stiff; calyx tomentose, lobes broadly ovate, shortly cuspidate, white tomentose inside; petals obovate, 8–12 mm long; stamens rather short. Fruits with reflexed calyx-lobes, round to shortly oblong, black, with about 25–50 rather dry drupelets, but of excellent quality.

Atlantic United States; from Connecticut south to Florida, west to Louisiana, on rocky and sandy soil. "A straggling briar of gray aspect" (Pursh); easily to be recognized by its cuneate, gray-tomentose leaves and the stout prickles.

Rubus probabilis. Bailey *Gent. Herb.* **1**:180, fig. 81. 1923.

R. Linkianus Collect., not Seringe.

Similar to *R. cuneifolius*, but stouter, and stems stronger; canes more or less angular, downy, with strong, more or less curved prickles. Leaves 3- to 5-foliolate; petioles stouter, tomentose and prickly; stipules lanceolate-subulate; leaflets firm, larger, varying from oblanceolate to obovate-oblong or obovate, obtuse but contracted into a short point, attenuate towards the rounded or rarely subcordate base, dark green above, grayish felty underneath, finely and sharply doubly toothed except near the base. Flowering branches 3-foliolate, leaflets shorter, uppermost leaves simple. Inflorescence similar to *R. cuneifolius*, terminal and axillar, corymbose; pedicels felty and prickly. Fruits larger and juicy, drupelets with large tesselate seeds.

Southern Atlantic States; from North Carolina to Florida and Alabama. There are several cultivated varieties referable to this species; as, Perfection, Topsy, Nanticoke, and Robison.

Some forms of this species come near to the *Argutus* group. In herbaria specimens of this species are occasionally found labelled as *R. Linkianus* Seringe. This is, however, an obscure European species. Focke places the name as a synonym of a form of a subspecies of *R. candicans*.

Series 8. **Canadenses.** Bailey *Gent. Herb.* **1**:180. 1923.

Canes angled and furrowed, from a very robust and erect habit to a weak and diffusing one, brown, unarmed or prickly; prickles straight, mostly slender; plants almost glabrous. Leaves 5-foliolate, thin; petioles slender, like the petiolules and veins, of a pale yellowish

green or reddish color; lateral and terminal leaflets long stalked, long acuminate or suddenly contracted into a long point. Flowering branches pale, slightly pubescent; inflorescence racemose; peduncle and pedicels slender, patent like the calyx, adpressedly puberulous, not glandular.

So far no horticultural varieties have been developed from this series, but some of the species offer possibilities.

A. Canes 1.5–4 m high, erect, robust, usually unarmed; larger leaflets with a cordate base..... *R. canadensis*

AA. Canes not as high, more or less prickly; only terminal leaflets cordate or rounded at the base

B. Canes erect, stouter

C. Leaflets oval or ovate..... *R. elegantulus*

CC. Leaflets obovate or oblanceolate..... *R. amicalis*

BB. Canes ascending, weaker; leaflets ovate with a long point..... *R. randii*

Rubus canadensis. Linnaeus *Sp. Pl.* 494. 1753; Card *Bush-Fr.* 327. 1898; Bailey *Ev. Nat. Fruits* 385, figs. 92 & 93. 1898; Schneider *Ill. Hdb. Laubh.* **1**:519. 1905; Gray *New Man.* 7th Ed. 490. 1911; Rydberg *N. Am. Fl.* **22**:468. 1913; Focke *Spec. Rub.* **3**:91. 1914; Bailey *Gent. Herb.* **1**:180. 1923.

R. Millspaughii. Britton *Bul. Torrey Bot. Club* **18**:366. 1891.

Thornless or Mountain Blackberry.— Robust shrub, 1.5–4 m high; canes stout, erect, slightly arching at the top, angled and furrowed, brownish, glabrous, usually unarmed or with a few straight prickles; branching the first year. Leaves 5-foliolate, large; petiole and petiolules glabrous, usually brownish, unarmed, or rarely with a few prickles; stipules lanceolate-subulate; leaflets all, especially the terminal one, long stalked, ovate-lanceolate contracted into a long point, more or less cordate at the base, the terminal leaflet broader and longer, green above and paler underneath, glabrous on both sides, simply or doubly serrate, the teeth acute, directed forward; veins prominent underneath, pale or reddish. Flowering branches slender, yellowish green; leaves 3-foliolate, leaflets obliquely ovate or rhomboid-ovate, pointed, sharply irregularly serrate; petioles often slightly pubescent. Flowers in long lax racemes 8–15 cm long; peduncle and pedicels slender, unarmed, finely pubescent; lower bracts foliaceous, simple, obovate, upper bracts lanceolate, acute, pubescent; pedicels up to 6 cm long, slender, almost filiform, spreading; calyx minutely pubescent, lobes ovate, decidedly cuspidate, white tomentose inside; petals longer, 10–15 mm, obovate, clawed at the base; stamens and pistils numerous, filaments slender. Fruit roundish, black, sour or even bitterish, ripening late, drupelets numerous, rather large, glabrous.

Eastern North America; from Newfoundland west to Wisconsin, and southward in the mountains to North Carolina. The accounts about the quality of the fruit vary. Bailey, in *Evolution of our Native Fruits*, page 324, says they are "quite palatable and sweet to a hungry man." Again, "that the fruit becomes ripe and black in September. The berries are large, long and slender and very sweet, lacking the sharply acid or bitterish quality of the berries of the lower mountains."

Rubus elegantulus. Blanchard *Rhodora* **8**:95. 1906; Rydberg *N. Am. Fl.* **22**:469. 1913; Bailey *Gent. Herb.* **1**:183. 1923.

Stems erect, rather slender, 1–1.5 m high, angled and furrowed, brown, glabrous, with rather numerous, scattered, retrorse or straight, slender prickles along the angles. Leaves of the turions 5-foliolate; petioles, petiolules and midveins glabrous with slender retrorse prickles; leaflets oval or ovate, long taper-pointed, dark green, slightly paler beneath, glabrous or almost so, finely and sharply doubly serrate; terminal leaflet usually rounded at the base, long stalked, the others mostly acute at the base, shorter stalked or the lowest almost sessile. Flowering branches slender, paler, slightly pubescent and with scattered, slender, retrorse prickles; leaves 3-foliolate, the upper ones simple, petioles and sometimes the veins at the back puberulous; leaflets oval or obovate, less pointed and coarser toothed. Flowers in racemes, the lower axillar, peduncle pubescent and prickly, pedicels spreading, filiform, pubescent and with a few very slender prickles; bracts lanceolate. Calyx finely pubescent, lobes ovate, shortly cuspidate; petals oval, 10–13 mm long. Fruit nearly globular or oblong, black and sweet.

Northeastern United States; from Maine to Vermont.

Rubus amicalis. Blanchard *Rhodora* **13**:56. 1911; Rydberg *N. Am. Fl.* **22**:468. 1913; Bailey *Gent. Herb.* **1**:183. 1923.

R. amabilis. Blanchard *Rhodora* **8**:173. 1906; not Focke 1905.

Erect, 1–2 m high, canes angled and furrowed, brown, with scattered straight prickles. Leaves of the turions 5-foliolate; petioles and petiolules with minute recurved prickles or unarmed; leaflets obovate, or oblanceolate, long taper pointed, roundish or pointed at the base, finely doubly serrate, rather thick, dark green and shining above, when young with a few scattered hairs, paler and glabrous on the back; the middle one longer stalked than the lateral ones, the lowest almost sessile. Flowering branches with smaller, more obtuse 3-foliolate leaves. Flowers racemose, pubescent; pedicels slender, pubescent; bracts lanceolate; calyx almost glabrous, lobes ovate, mucronate, tomentose inside; petals white, 12–18 mm long. Fruits variable, small, oblong, black.

Eastern North America; from Nova Scotia to Maine.

Blanchard's specimens of *R. amicalis* are very variable, some come near *R. canadensis*, some are nearer *R. elegantulus;* but this species should certainly not be included under *R. canadensis*, which is a very distinct species. There occur forms closely resembling this species with strong deltoid prickles and with the leaflets softly pubescent beneath. They may be hybrid forms with *R. allegheniensis* or some ally of this species.

R. amicalis was crossed at Geneva with the raspberries Erskine Park and Smith (I).

Rubus randii. Rydberg in Britton *Man.* 497. 1901; Rydberg *N. Am. Fl.* **22**:469. 1913; Bailey *Gent. Herb.* **1**:183. 1923.

R. villosus var. *Randii.* Bailey in Rand & Redfield *Fl. Mt. Desert* 94. 1894.

R. argutus Randii. Bailey *Ev. Nat. Fruits* 385. 1898.

Stems about 0.3–0.75 m long or more, ascending or diffuse, rather weak, angular and furrowed, greenish brown, glabrous, with slender patent or retrorse prickles. Leaves 5-foliolate; petioles long, slender, glabrous, with a few retrorse prickles; stipules subulate; leaflets thin, glabrous on both sides, sharply doubly toothed, ovate, with a long point, more or less acute at the base, shortly stalked or sessile, the terminal one longer stalked, broader and larger, more suddenly contracted into a long tip, roundish or subcordate at the base. Flowering branches slightly pubescent and sparingly prickly; the leaves 3-foliolate, the uppermost simple; petioles puberulous, stipules lanceolate. Flowers 5–13, in rather short racemes; bracts lanceolate; pedicels slender, finely pubescent, unarmed; calyx almost glabrous or finely puberulent, lobes ovate-lanceolate, cuspidate, tomentose inside; petals oblong, 12 mm long. Fruit half round, black, rather small and dry, drupelets few, glabrous.

Eastern North America; from Nova Scotia to Massachusetts and New York, in woods.

Series 9. **Alleghenienses.** Bailey *Gent. Herb.* **1**:183. 1923.

Plants mostly stout; canes pubescent when young and glandular, glabrous when old, angled and furrowed and armed with strong prickles. Leaves 5-foliolate, leaflets pubescent underneath, ovate and pointed, usually long stalked, especially the terminal ones; petioles and petiolules prickly, pubescent or villous and mostly glandular. Inflorescence racemose, usually many flowered and elongate, leafy bracted only at the base (except *R. alumnus*), more or less pubescent and glandular (except *R. pergratus*), and somewhat prickly. This group contains many important cultivated varieties of blackberries.

A. Inflorescence not glandular, pedicels villous or pubescent.....*R. pergratus*
AA. Inflorescence glandular
B. Inflorescence leafy bracted, flowers very large.....*R. alumnus*
BB. Inflorescence leafy only at the base
C. Racemes long
D. Plants stout, tall, erect; terminal and lateral leaflets more or less cordate....*R. allegheniensis*
DD. Plants dwarf, ascending; terminal leaflet rounded, lower ones pointed at the base.....*R. flavinanus*
CC. Racemes short
D. Young canes, petioles and petiolules glandular.....*R. frondisentis*
DD. Young canes, petioles and petiolules not glandular.....*R. andrewsianus*

Rubus allegheniensis. Porter *Bul. Torrey Bot. Club* **23**:153. 1896; Gray *New Man.* 7th Ed. 489. 1911; Rydberg *N. Am. Fl.* **22**:464. 1913; Focke *Spec. Rub.* **3**:(313) 89. 1914; Bailey *Stand. Cyc. Hort.* **5**:3031. 1916; Bailey *Gent. Herb.* **1**:183. 1923.

R. villosus. Bigelow *Fl. Bost.* 122. 1814; Focke *Spec. Rub.* **3**:(313) 81. 1914; not Thunberg 1784; not Aiton 1789.

R. villosus var. *sativus.* Bailey *Amer. Gard.* **11**:719. 1890

R. nigrobaccus. Bailey *Ev. Nat. Fruits* 379. 1898; Card *Bush-Fr.* 324. 1898.

R. nigrobaccus var. *sativus.* Bailey *Ev. Nat. Fruits* 379. 1898.

R. sativus. Brainerd *Rhodora* **2**:26. 1900.

Common High-bush Blackberry.— Vigorous shrub; canes vigorous, erect, arching above, 0.9–2 m high and more, obtusely angled and furrowed, sparingly puberulous

when young, and with a few scattered glands below, more or less villous and glandular on the growing point, usually brown and glabrous when old, armed with stout, flat, straight or slightly curved prickles; often branching the first year. Leaves of the turions with petioles and petiolules more or less pubescent or villous, glandular and prickly, the prickles spreading or recurved, extending along the midveins; stipules subulate, glandular ciliate; leaflets 5, all stalked, especially the terminal one, ovate, abruptly contracted into a rather long point, cordate or rounded at the base, the terminal one larger and much broader, 5–15 cm long or more, dark green and more or less hairy above, paler and densely velvety pubescent beneath, chiefly along the veins. Flowering branches 10–30 cm long, villous, prickly and more abundantly glandular; leaves 3-foliolate, lower leaflets oblique, or obscurely lobed, sessile, all acute, but less acuminate; uppermost leaves simple. Flowers numerous, about 20, in a cylindrical raceme, 10–20 cm long, the lower ones leafy bracted and with branched pedicels; peduncle or rhachis and pedicels densely villous, glandular and prickly; bracts ovate or lanceolate, 5–10 mm long; pedicels slender, patent, 2–4 cm long; calyx pubescent and glandular, green, lobes ovate to lanceolate-ovate, cuspidate, white tomentose inside; petals oval or elliptical, 12–15 mm long. Fruit oblong or elongate, black, sweet, with numerous glabrous drupelets.

Eastern North America; from Nova Scotia to North Carolina, Arkansas, and Illinois. A fairly constant and easily recognized species; its variations extend to the size and shape of the leaves, the length of the racemes, and the degree of glandulosity on stems, petioles, and petiolules. The inflorescence is always glandular; this and the stalked, velvety pubescent leaflets always help to distinguish it. With its large white flowers, borne in long racemes, and its handsome leaves, it is an attractive shrub. Plants growing in the deep shade of the woods have much thinner and paler leaves and stems. *R. allegheniensis* was crossed at Geneva with the blackberry Erskine Park.

Rubus flavinanus. Blanchard *Amer. Bot.* **10**:69. 1906; Bailey *Gent. Herb.* **1**:185. 1923.

Rather dwarf, ascending, glabrous, with scattered gland-tipped hairs, armed with slender hooked prickles from a broadened base. Leaves 5-foliolate, when young pubescent beneath; leaflets narrowly ovate or obovate, acuminate, rather coarsely simply toothed; petioles and especially the petiolules prickly. Flowers in slender long racemes; bracts often foliaceous; pedicels very glandular; petals oblong. Fruit globose, sweet, black, with a few drupelets.

Northeastern United States; Vermont. According to Rydberg, *N. Am. Fl.* **22**:469, this is a hybrid between *R. elegantulus* and *R. nigrobaccus* (*R. allegheniensis*). The same view is held by Brainerd and Peitersen, *Vt. Sta. Bul.* **217**:56, 57. 1920. Plants from the type locality transplanted to the grounds of the Experiment Station, Burlington, Vermont, developed into large, robust shrubs.

From *R. allegheniensis* is derived a number of the most valued high-bush blackberries, which may be called for horticultural purposes the big-cluster varieties. The varieties descending from *R. allegheniensis* pure, or perhaps with some slight, scarcely traceable mixture of an allied species, are always easily recognized by their vigorous growth, the rather long-stalked lateral leaflets, and the mostly long racemose inflorescence, which is more or less densely covered with stalked glands. The berries are mostly more elongate than roundish.

Here belong Agawam, Albro, Ancient Briton, Eldorado, Erskine Park, Snyder, and Taylor.

Some varieties seem to be crosses between *R. allegheniensis* and *R. frondosus*. In these the lateral leaflets are shorter stalked, the terminal leaflets are rounder and less deeply cordate; the inflorescence bears a larger number of leaf-like bracts, and is sparingly glandular. Here belong the varieties Ambrosia, Dorchester, and Early Mammoth.

A few other varieties are probably hybrids between *R. allegheniensis* and *R. pergratus*, with canes and leaves much like *R. allegheniensis*, inflorescence villous, pubescent, and glandular, more leafy bracted and leaflets deeper toothed; pedicels more or less prickly. Here belongs Stone Hardy.

Rubus alumnus. Bailey *Gent. Herb.* 1:191. 1923.

Robust plant, with erect canes, about 2 m high, pubescent and glandular when young, glabrous when old, angular and with scattered, stout, straight or slightly curved prickles with a flat base. Leaves 3- to 5-foliolate, slightly pubescent above and softly pubescent underneath; leaflets broadly elliptic-ovate, acute or shortly pointed, coarsely doubly serrate; the terminal one longer stalked and larger, 8–12 cm long. Petiole, petiolules, and midveins strongly prickly and with stalked glands. Flowering shoots angular, prickly, leafy; the lower leaves 3-foliolate, the upper ones simple, all bearing flowers in their axils, hence the raceme very foliaceous; leaflets with large, simple, lanceolate teeth; lower pedicels remote, long, erect, the upper ones approximate and shorter, rising from smaller bracts, all pubescent, glandular, and with scattered, spreading prickles. Flowers large and showy, 3–4 cm across; calyx-lobes ovate, shortly cuspidate; petals broadly obovate. Fruits large 30–35 mm long and 18 mm in diameter, very sweet.

Central United States; western Missouri; in rich open woods. In Jackson County, Missouri, the wild fruits are sold on the markets in quantities and the plants are also taken into cultivation.

On account of its leafy inflorescence Bailey places this fine and distinct species among the "Frondosi." However, we prefer to associate it with the "Alleghenienses" for its glandular inflorescence.

Rubus pergratus. Blanchard *Rhodora* **8**:96. 1906; Gray *New Man.* 7th Ed. 490. 1911; Rydberg *N. Am. Fl.* **22**:467. 1913; Bailey *Gent. Herb.* **1**:185. 1923.

R. orarius. Blanchard *Rhodora* **8**:169. 1906.

Canes stout, erect, 1–2 m high, tomentose on the young parts, glabrous when old and brown, angled and furrowed; armed with some strong, straight or slightly bent prickles. Leaves of the turions 5-foliolate; leaflets stalked, ovate or oval, suddenly contracted into a sharp point, sharply serrate, almost glabrous above, paler and velvety pubescent underneath; the lowest leaflets shortly stalked, somewhat attenuated at the base and more or less oblique, the middle ones longer stalked, rounded or subcordate and the terminal one subcordate or cordate at the base, broader than the others. Petioles, petiolules, and midveins more or less villous and with recurved prickles, not glandular; stipules subulate. Flowering branches angular, villous, and prickly; leaves 3-foliolate, the uppermost simple; leaflets smaller, more obtuse and coarser toothed, the lateral ones sessile. Flowers in racemes, the lower ones axillar, racemes rather short, 7- to 12-flowered, rhachis and pedicels rather stout, densely villous, unarmed or with a few straight prickles but not glandular; bracts lanceolate. Calyx hairy, lobes ovate, shortly cuspidate, whitish felty inside; petals large, obovate, white. Fruits oblong, large, black; drupelets large and pulpy, sweet and juicy.

Eastern North America; from Maine west to Ontario and Iowa, south to the Catskills of New York. At the type locality, Alstead, New Hampshire, this and *R. allegheniensis* grow side by side, according to Blanchard, and *R. pergratus* is two weeks earlier. Besides he states that *R. pergratus* goes up to higher altitudes. According to Brainerd and Peitersen, the wild berries are picked for the market in New England. *R. pergratus* is one of the parents of a large number of our most important big-cluster blackberry varieties. They are easily recognized by the eglandular raceme, the rather long and obtuse leaflets of the flowering shoots, with long sharp teeth; the pedicels are villous, occasionally with a few prickles.

Here belong the following varieties: Black Chief, Blowers, Early King, Ford No. 1, Fruitland, Early King, Kittatinny, Lovett, Mersereau, Miller, Minnewaska, Sanford, Texas, Ward, and Watt. Some other varieties may be crosses between *R. pergratus* and *R. frondosus.* They resemble the foregoing, but the inflorescences are more leafy bracted. Among these are the following: Brewer, Erie, Green Hardy, La Grange, Ohmer, Success, Triumph, and Woodland. See also under *R. allegheniensis.*

Rubus frondisentis. Blanchard *Torreya* **6**:119. 1906; Bailey *Gent. Herb.* **1**:183. 1923.

Erect, canes covered all over with weak prickles, bristles, and stalked glands. Leaves 5-foliolate, leaflets stalked, ovate, acute, more or less rounded at the base, terminal one broader ovate, serrate, almost glabrous and shining above, pubescent underneath at least

when young; petioles and petiolules copiously prickly, bristly, and glandular. Racemes rather short, about 8- to 11-flowered; bracts small, peduncle or rhachis and pedicels unarmed but densely glandular. Fruit small, cylindric.

Northeastern United States; Vermont, New Hampshire.

Rydberg, *N. Am. Fl.* **22**:463. 1913, takes this species to be a hybrid between *R. nigrobaccus* (allegheniensis) and *R. vermontanus;* Brainerd & Peitersen, *Vt. Sta. Bul.* **217**:62, 63. 1920, explain it as a hybrid between *R. pergratus* and *R. setosus.*

Rubus andrewsianus. Blanchard *Rhodora* **8**:17. 1906.

Similar in habit to *R. allegheniensis,* but turions not glandular; leaves also similar. Petioles and petiolules villous but not glandular, very prickly, especially the latter. Inflorescence short, broadly corymbose-racemose; bracts leafy, mostly unifoliolate, upper bracts short, lanceolate; pedicels slender, spreading, pubescent with a few stalked glands and prickles. Fruits roundish or ovate.

Eastern United States; from Massachusetts to Virginia.

This species was never clearly understood and the numerous specimens collected and named by Blanchard, now in Dr. Bailey's herbarium at Ithaca, represent more than what was originally described. It is certainly not a synonym of *R. argutus* as it is treated in *N. Am. Fl.* l.c. 464, nor does Brainerd's and Peitersen's figure and description, *Vt. Sta. Bul.* l.c. 52, 53, correspond to Blanchard's specimens from the type locality. *R. andrewsianus* is still insufficiently known; possibly it is a hybrid.

Series 10. **Arguti.** Bailey *Gent. Herb.* **1**:186. 1923.

Canes erect, sharply angled and furrowed, with stout prickles along the angles, plants pubescent or glabrous, and without glands. Leaves 5-foliolate, leaflets mostly narrower than in most of the other groups, oblong-obovate or narrower, the terminal leaflet usually broadest above the middle; petioles usually pubescent. Inflorescence shortly racemose, pubescent and prickly, without glands. This group comprises several cultivated varieties.

A. Leaflets oblong or obovate; fruits black
  B. Leaflets obovate-oblong, sharply doubly toothed
    C. Pedicels stout, prickly.....*R. argutus*
    CC. Pedicels usually slender and unarmed.....*R. floricomus*
  BB. Leaflets from obovate-oblong to oblanceolate, rather finely serrate....*R. laudatus*
AA. Leaflets narrowly lanceolate, long pointed; fruits white.....*R. louisianus*

Rubus argutus. Link *Enum.* **3**:60. 1822; Bailey *Stand. Cyc. Hort.* **5**:3031. 1916; Bailey *Gent. Herb.* **1**:186, fig. 84. 1923.

Canes erect, pubescent when young but soon glabrous, angled and furrowed, brown when old, along the angles with scattered, stout, straight or curved prickles from a flat base. Leaves of the turions 3- to 5-foliolate; leaflets oblong, acuminate and somewhat attenuate towards the base, doubly sharply toothed, dark green and glabrous above, paler underneath and pubescent along the veins; petioles glabrous like the puberulous petiolules

and midveins with scattered, recurved prickles; stipules lanceolate or lanceolate-subulate. Flowering shoots short, hirsute and prickly; leaves 3-foliolate or the upper ones simple, acute, more or less irregularly doubly toothed. Racemes short, about 6- to 8-flowered, rhachis and pedicels pubescent and with a few scattered, spreading or recurved slender prickles. Flowers 30–35 mm across; calyx puberulous, lobes ovate-deltoid, white tomentose inside; petals roundish oblong.

Eastern United States; from Virginia to Florida, west to Louisiana and Missouri and north as far as Indiana, and probably farther west. The name *R. argutus* has been wrongly applied to a great many different plants. Link's type specimen is reproduced by Prof. Bailey, l.c.

There are also one or two closely allied species or varieties, apparently natives of the southwestern states, with more glossy and subcoriaceous leaves. To one of these belongs the cultivated variety Soft Core, which was distributed from the United States Department of Agriculture Experiment Station at Chico, California.

Rubus laudatus. Berger n. sp.

Tall and vigorous canes, erect, sharply angled and deeply furrowed, downy when young, glabrous later on, more or less dark brown, along the angles with scattered, sharp, straight or retrorse prickles 5–7 mm long. Petioles rather stout, pubescent, with a few hooked prickles; stipules subulate; leaves 5-foliolate; lowest leaflets almost sessile, ovate-lanceolate, scarcely oblique, roundish or slightly acutish at the base; the middle ones stalked, larger; the terminal one on a longer stalk, obovate-oblong to oblanceolate, shortly acuminate, subcordate at the base; petiolules villous, leaflets green and glabrous above, paler and pubescent underneath, prickly on the midvein and with 10–12 prominent rather closely set lateral veins, rather finely and regularly simply or doubly serrate, teeth short, pointing forward. Flowers 7–8 in a leafy cluster; pedicels pubescent and sparingly prickly; calyx pubescent, green, lobes acuminate; petals roundish ovate. Fruit oval, early ripening, black, sweet.

Central United States; yet insufficiently known, but represented in cultivation by such varieties as Bundy, type of the species, which originated in Missouri, and probably Early Harvest. Here belongs also the variety Kenoyer which is a hybrid with Kittatinny (*R. allegheniensis*). This has pubescent canes, broader, and coarser-toothed leaflets, which are velvety pubescent underneath.

Rubus floricomus. Blanchard *Amer. Bot.* **9**:106. 1905; Gray *New Man.* 7th Ed. 491. 1911; Bailey *Gent. Herb.* **1**:188. 1923.

Canes erect, angular and furrowed, glabrous, with retrorse rather slender prickles from a broad base. Leaves 5-foliolate, rusty velvety pubescent underneath, coarsely and sharply toothed; those on the pubescent flowering branches 3-foliolate with obovate-obtuse leaflets, the uppermost simple, ovate or lanceolate, simply or doubly serrate. Inflorescence corymbose-racemose, about 3- to 8-flowered; pedicels slender, pubescent, usually

unarmed; flowers rather small for the group; calyx pubescent or hirsute, lobes ovate-lanceolate, shortly cuspidate; petals longer, roundish. Fruit subglobose, drupelets few, rather large.

Northeastern United States; Vermont. There are no cultivated varieties.

Another species probably of the *Argutus* group has been segregated as *R. crux*. Ashe *Jour. Elisha Mitchell Sci. Soc.* **19**:8. 1903.

Rubus louisianus. Berger n. sp.

Swampberry.— Canes erect, 1–2 m high, sharply angled and deeply furrowed, downy when young, glabrous later on, green or greenish brown, along the angles with scattered, middle sized or large straight or hooked prickles. Petioles rather stout, like the petiolules pubescent or villous and with scattered, hooked prickles which extend to the midveins; stipules subulate, ciliate; leaflets 5, narrowly lanceolate or oblanceolate, rather long pointed and somewhat narrower toward the base, bright dull green above, paler and pubescent underneath, rather regularly and sharply simply or doubly serrate; the terminal leaflet larger, longer pointed and longer stalked, roundish or even subcordate at the base, middle ones shortly stalked and lower ones sessile, all more or less acute at the base. Fruiting racemes pubescent, with 7–8 or more erect pedicels, pubescent and with a few hooked prickles; leaves 3-foliolate, leaflets cuneate at the base, the upper ones simple ovate-deltoid, shortly stalked. Calyx pubescent, lobes ovate-deltoid, tomentose inside. Fruit cylindrical with numerous small drupelets, whitish, sweet.

Southeastern United States; South Carolina and Louisiana, on damp roadsides, in ravines, known as Swampberry.

To this species belongs the variety Crystal White. Burbank's variety Iceberg is possibly the same renamed. It is too tender for the North, usually freezing back.

Series 11. **Frondosi.** Bailey *Gent. Herb.* 1:188. 1923.

Robust brambles, canes erect, arching above or recurving, angular when young, more or less terete when old, glabrous, armed with scattered rather stout prickles. Leaves 5-foliolate, velvety pubescent beneath, leaflets mostly broad, roundish or roundish ovate, the terminal leaflet cordate; those on the flowering branches variable. Inflorescence leafy, pubescent, slightly prickly, usually without glands.

A. Inflorescence not glandular or glands not very conspicuous
  B. Leaflets on turions, especially the terminal ones, roundish ovate, evenly toothed or serrate
    C. Bract leaves broad, obtuse ..... *R. frondosus*
    CC. Bract leaves pointed at both ends ..... *R. recurvans*
  BB. Leaflets on turions narrower, the terminal ones ovate, long pointed, in the upper half lobately doubly toothed or serrate
    C. Bract leaves very variable, narrow and acute or acuminate ..... *R. arundelanus*
    CC. Bract leaves ovate to lanceolate, obtuse or pointed ..... *R. amnicola*
AA. Inflorescence glandular

B. Glands very prominent; bract leaves broad, obtuse.....*R. alumnus*
BB. Glands scarcely visible; bract leaves narrow, acuminate, variable in shape.....
R. arundelanus

Rubus frondosus. Bigelow *Fl. Bost.* 2nd Ed. 199. 1824; Gray *New Man.* 7th Ed. 489. 1911; Rydberg *N. Am. Fl.* **22**:466. 1913; Focke *Spec. Rub.* **3**:(318) 94. 1914; Bailey *Stand. Cyc. Hort.* **5**:3031. 1916; Bailey *Gent. Herb.* **1**:188. 1923.

R. villosus var. *frondosus.* Torrey *Fl. U. S.* **1**:487. 1824.

Robust shrub, canes erect or recurved, 1–2 m high, angular at first, more or less terete later on, brown and glabrous, with a few scattered, straight or slightly recurved prickles from a broadened base. Leaves mostly 5-foliolate; petioles rather stout, finely pubescent or glabrescent, petiolules more or less villous, scattered hooked prickles extending to the midveins of the larger leaflets; stipules linear-lanceolate, ciliate; lower leaflets sessile, obliquely ovate, shortly pointed, lateral ones shortly stalked, larger, broadly ovate, and abruptly pointed, terminal leaflet distinctly stalked, cordate, broadly ovate or roundish ovate, abruptly acuminate, 8–14 cm long and 6–10 cm wide; rather firm, dark green above and glabrous when mature, green and densely velvety pubescent underneath; doubly serrately toothed, teeth rather large and broad, mucronate. Flowering shoots very leafy, pubescent, sparingly prickly; prickles slender, recurved; lower leaves 3-foliolate, upper ones simple; stipules lanceolate, acute; leaflets 3–7 cm long, very variable, ovate or obovate, acute or roundish or subcordate at the base, shortly pointed and coarsely toothed, velvety pubescent underneath. Inflorescence short corymbiform, or with a few lower axillary pedicels; bracts lanceolate, villous; pedicels pubescent, rarely with a few prickles. Calyx green, pubescent; lobes ovate, more or less cuspidate, white tomentose inside; petals broadly oboval, about 10 mm long, white. Fruit black, roundish, sweet, pulpy; drupelets and seeds large.

Northeastern and central United States; from Massachusetts to Virginia in the South, to Kansas in the West and Ontario in the North, according to Rydberg, l.c.

R. frondosus is one of the parents of several important varieties of the big cluster blackberries in combination either with *R. alleghenicnsis* or with *R. pergratus.* There seem to be no pure-bred varieties of *R. frondosus.*

R. brainerdi, Rydberg *N. Am. Fl.* **22**:467. 1913; Brainerd & Peitersen *Vt. Sta. Bul.* **217**:32, Pl. 13. 1920; *R. sativus,* Brainerd *Rhodora* **2**:26. 1900; not *R. nigrobaccus* var. *sativus* Bailey 1898, is similar to *R. frondosus,* but a much lower shrub, 0.3–0.6 cm high; with weaker canes and only sparingly prickly. It is perhaps nothing more than a dwarfed form of *R. frondosus.*

Rubus recurvans. Blanchard *Rhodora* **6**:224. 1904; Gray *New Man.* 7th Ed. 490. 1911; Rydberg *N. Am. Fl.* **22**:467. 1913; Bailey *Gent. Herb.* **1**:190. 1923.

Stems erect at first, recurving later on, rooting at the tips, glabrous, slightly angular at first, terete and brown when mature, armed with scattered, straight or retrorse, rather

weak prickles. Petioles glabrous, petiolules pubescent, both beset with scattered, hooked prickles; stipules linear-lanceolate. Leaflets 3–5, the lowest sessile, obliquely ovate, acutish at both ends; the lateral ones stalked, broader, ovate, abruptly pointed, roundish at the base; the terminal leaflet cordate-ovate, suddenly contracted into a prolonged point; in 3-foliolate leaves the lateral leaflets broad and large with a lower lobe; rather firm in texture, glabrous and dark green above, slightly paler green and velvety pubescent underneath; doubly serrately toothed, teeth rather large and broad, mucronate, like in *R. frondosus*. Flowering branches pubescent, sparingly prickly; lower leaves 3-foliolate, with obovate-cuneate, obtuse leaflets; the upper ones simple, the lower ones broadly lanceolate, the uppermost narrowly lanceolate, pointed at the base and long acuminate, with large simple or double teeth, all velvety pubescent underneath. Flowers not very numerous, in a leafy, pubescent or villous corymb; pedicels slender, occasionally prickly; calyx pubescent, lobes ovate, cuspidate, white tomentose inside; petals 12–15 mm long, elliptic, white. Fruit elongate, 10–15 mm long, black, sweet.

Northeastern United States; from Maine to northern New York. Differs from *R. frondosus* chiefly in less roundish leaves and in the upper leafy bracts being more pointed and deeper serrate.

R. jeckylanus, Blanchard *Rhodora* 8:177. 1906, is considered by most writers as a synonym of *R. recurvans*. Blanchard's specimens seem to represent intermediate forms connecting in some way *R. frondosus* and *R. recurvans;* they have, however, a more villous inflorescence than both, the bract leaves of the former, and the leaves of the turions of the latter.

R. recurvans and a plant grown as *R. jeckylanus* were both crossed with Erskine Park (blackberry), and also with Snyder at Geneva.

Rubus arundelanus. Blanchard *Rhodora* 8:176. 1906.

Canes angular when young, terete when old, with rather numerous and slender, straight, retrorse prickles from a broader base. Petioles slightly pubescent, the petiolules villous, both beset with numerous small hooked prickles; stipules linear or subulate-lanceolate. Leaves 5-foliolate, rather thin and light green on both sides, with scattered single hairs or glabrescent above, softly pubescent beneath, sharply and unequally doubly toothed, the teeth narrow and sharp; lower leaflets sessile, obliquely lanceolate or oblanceolate, acuminate, attenuate at the base; lateral leaflets longer stalked, larger and broader, subcordate at the base and suddenly contracted into a long point; terminal leaflet very long stalked, usually subcordate, ovate, long pointed, lobately doubly toothed, in the upper half, sometimes broader and ovate-deltoid, 7–10 cm long and 5–6 cm wide. Flowering branches pubescent, sparingly prickly; the leaves with scattered hairs above and pubescent at the back, extremely variable, mostly 3-foliolate, but often the lateral ones deeply lobate and thus seemingly 5-foliolate, sometimes also the terminal leaflet deeply 3-lobed; leaflets of the lower leaves usually more rounded, those of the upper ones much narrower, all attenuate at the base and deeply, often lobately doubly toothed; the uppermost leaves or leafy bracts narrowly lanceolate, acuminate. Flowers about 6–8, in a short corymb with

several axillary ones below; pedicels about 2 cm long, pubescent or villous, sparingly prickly; calyx hirsute, like the pedicels with a few inconspicuous stalked glands, lobes lanceolate, cuspidate, white tomentose inside; petals oblong, 10 mm long.

Northeastern United States; Vermont. Although this species comes near to *R. recurvans* and *R. frondosus* it differs from both. It is remarkable for the variation of its leaves, chiefly on the flowering branches, further its flowers are smaller than those of its allies; also the leaflets of the turions are decidedly less rounded and more elongated than in those.

Rubus amnicola. Blanchard *Rhodora* **8**:170. 1906; Bailey *Gent. Herb.* **1**:190. 1923.

Canes tall, erect, recurving, brown, angled, with scattered, rather stout, spreading prickles. Leaflets on flowering branches oblong to oblong-lanceolate, long acuminate, rather regularly simply or doubly serrate, softly pubescent underneath. Petioles and inflorescence villous-pubescent; bract leaves often simple, ovate to lanceolate, obtuse or pointed. Pedicels short, sparingly prickly; calyx pubescent, lobes ovate, shortly mucronate, white tomentose inside; petals roundish oblong.

Northeastern America; from Maine to Nova Scotia. One of the many forms clustering around *R. frondosus*, certainly it is not allied to *R. argutus*, nor can it be a hybrid of this species with *R. canadensis*.

Rubus recurvicaulis. Blanchard *Rhodora* **8**:153. 1906.

This is probably of hybrid origin, perhaps between *R. recurvans* and some procumbent stemmed plant of the Flagellares. Most of the specimens of Blanchard, now in Prof. Bailey's herbarium, Ithaca, New York, have subglabrous leaves, but some are densely tomentose at the back; other specimens are entirely glabrous and suggest some other origin.

R. recurvicaulis var. *inarmatus*, Blanchard *Rhodora* **8**:155. 1906, is a hybrid form with some plant of the Frondosi group.

R. rossbergianus, Blanchard *Rhodora* **9**:7. 1907, is another hybrid form between some species of the Frondosi and the Flagellares.

Series 12. **Floridi.** Bailey *Gent. Herb.* **1**:192. 1923.

Slender stemmed, elongate, erect or climbing, canes angular, prickly along the angles. Leaves 3- to 5-foliolate, leaflets rather small, hard, and more or less persistent, on the short flowering shoots roundish obtuse or ovate and scarcely pointed; flowering branches short.

Southeastern United States; insufficiently known; there may be three or more species.

Rubus floridus. Tratt. *Ros. Monog.* **3**:73. 1823; Schneider *Ill. Hdb. Laubh.* **1**:518. 1905; Rydberg *N. Am. Fl.* **22**:465. 1913; Bailey *Stand. Cyc. Hort.* **5**:3031. 1916; Bailey *Gent. Herb.* **1**:192. 1923.

R. argutus var. *floridus*. Bailey *Ev. Nat. Fruits* 385. 1898; Card *Bush-Fr.* 326. 1898.

Canes rather slender, glabrous, angular, furrowed, brownish, prickles scattered along

the angles, compressed, curved. Leaves of the turions mostly 3-foliolate but also 5-foliolate, elliptic, acute, not acuminate, dark green, paler underneath, pubescent along the veins. Flowering branches short, scarcely 5 cm long, pubescent, prickly; lower leaflets 3-foliolate, upper ones simple; terminal leaflet about ovate, obtuse or somewhat pointed, simple or doubly coarsely serrate, dark green and glabrous or almost above, paler underneath and pubescent at least on the veins; petioles sparingly pubescent. Flowers rather large, usually 3–6 or more together, the lower ones axillary, the upper ones from small lanceolate bracts, peduncle and pedicels more or less finely pubescent, pedicels 1.5–2 cm long; calyx almost glabrous or finely pubescent, whitish tomentose inside; petals roundish, 15 mm long. Fruit roundish with numerous drupelets.

Southeastern United States; from South Carolina to Tennessee, Georgia, Alabama, and Mississippi (Bailey). This plant was first collected by Enslen and described by Trattinick, but no exact locality was given. It seems to grow erect or somewhat climbing, reaching 8–10 feet, in low woodlands and swamps. *R. rhodophyllus*, Rydberg in Small *Fl. Southeast. U. S.* 518. 1903, and *R. persistens*, Rydberg l.c. 519, belong to this same species according to Bailey. *R. betulifolius*, Small *Fl. Southeast. U. S.* 518. 1903, is an allied but distinct, small-leaved species. It occurs in swamps in Alabama. It is a slender, thin-leaved plant.

Neither *R. floridus* nor *R. betulifolius* have so far any pomological interest; but the former is very productive and may perhaps yield some valuable varieties for the South.

Series 13. **Fruticosi.** Bailey *Gent. Herb.* 1:194. 1923.

More or less robust brambles, with stout angular, variously armed biennial canes. Leaves wintergreen or at least more or less persistent, 3- to 5-foliolate. Inflorescence panicled, many flowered.

Under this group are comprised all the European blackberries, as far as they have been introduced into the United States, and are cultivated as fruit or ornamental plants. The European brambles of this series are extremely numerous, but besides those enumerated below they are of no interest to the pomologist, at least at present.

A. Plants prickly
  B. Leaflets much divided in narrow segments.....*R. laciniatus*
  BB. Leaflets not divided, at most somewhat lobed, white tomentose underneath
    C. Inflorescence with very broad prickles.....*R. rusticanus*
    CC. Inflorescence prickly, but prickles with less broad base.....*R. procerus*
AA. Plants unarmed, white felty throughout.....*R. ulmifolius* var. *inermis*

Rubus laciniatus. Willdenow *Enum. Pl. Hort. Berol.* 1:550. 1809; Schneider *Ill. Hdb. Laubh.* 1:517. 1905; Rydberg *N. Am. Fl.* 22:461. 1913; Focke *Spec. Rub.* 3:134. 1914; Bailey *Stand. Cyc. Hort.* 5:3030. 1916; Bailey *Gent. Herb.* 1:196. 1923.

Cutleaved or Evergreen Blackberry.— Very vigorous climbing shrub, canes 3 m long or more, angular and furrowed, puberulous on the growing tips, but soon glabrous, brown, along the angles with scattered stout prickles, prickles hooked, compressed and flat at the brownish base. Petioles about as long as the lower leaflets, brownish, thinly puberulous and rather densely armed with short, stout, hooked prickles; stipules subulate, hairy. Leaves pedately 5-foliolate, petiolules pubescent and prickly, like the midveins; leaflets variously pinnate or pinnately cut, especially the lateral and the terminal ones, the segments ovate or lanceolate, acute at both ends, again deeply lobed, incised or coarsely serrate, the teeth manifestly mucronate; dark green and glabrous above, paler and pubescent underneath, at least on the veins, ciliate along the margins. Flowers numerous, in long, leafy pubescent or villous and prickly panicles, leaves similar to those of the turions, but 3-foliolate and the uppermost simple; calyx grayish tomentose, with numerous small, hooked, pale prickles, lobes with long leafy linear-lanceolate tips, white tomentose inside; petals white or pale rose, obovate, variously lobed, lobes rounded, the middle one shortly mucronate; stamens and pistils numerous. Fruit black, globose, large, of good quality.

Europe; first described after plants in the Botanic Garden at Berlin; now escaped from cultivation and naturalized in the Pacific Coast states from British Columbia to Oregon and perhaps farther south. According to Focke (l. c.) it is a mutation of *R. vulgaris* Wh. et N., a species common in western Europe; Focke states that he grew similar forms from seeds of this species.

Rubus rusticanus. Merc. in Reuter *Cat. Pl. Genève* 2d Ed. 279. 1861; Rogers *Brit. Rub.* 40. 1900; Focke *Spec. Rub.* 3:(377) 153. 1914; Bailey *Gent. Herb.* 1:197. 1923.

R. Linkianus auct. Rydberg *N. Am. Fl.* 22:461. 1913; Bailey *Stand. Cyc. Hort.* 5:3030. 1916; not *R. Linkianus* Seringe. 1825.

Robust and vigorous shrub, canes angular, erect and arching or climbing, sparingly stellately hairy; prickles long, stout, from a very broad base, straight or mostly recurving. Leaves 5-foliolate; petioles and petiolules stout, pubescent, very prickly, prickles from a very broad base; stipules subulate-lanceolate, ciliate; leaflets firm, almost coriaceous, dark green and glabrous above, densely and softly white tomentose beneath, doubly serrate except near the base, ovate or obovate-cuspidate, the lower ones oblique, the terminal one long-stalked, subcordate, with about 7 lateral veins on each side. Inflorescence a long, leafy panicle, pubescent, and very prickly; prickles broad based, hooked; leaves 3-foliolate, uppermost simple, ovate-deltoid or sub-3-lobate; axillary peduncles cymose; pedicels felted, very prickly, prickles narrower and straighter. Calyx-lobes white tomentose on both sides, ovate, acute, reflexed. Petals roundish, pale or deeper rose-colored. Fruit ovoid, black, edible.

Europe and Africa; widely distributed from the Mediterranean region as far west as northwest Africa, the Canaries, Madeira, and the Azores and northwards through France and western Germany to England and Ireland. A very variable plant and in a broad sense included by Focke

under *R. ulmifolius* Focke. A double-flowered, rather ornamental form (*R. rusticanus flore pleno*) is cultivated in collections, but it is rather tender and apt to suffer severely in our winters. It is sometimes found under the names *R. spectabilis flore pleno* and *R. fruticosus flore albo pleno.*

According to the late R. A. Rolfe, Kew, *R. rusticanus* is one of the parents of the cultivated variety Mahdi, which was raised by Messrs. J. Veitch & Sons, at Langley, from the raspberry Belle de Fontenay crossed with the blackberry common in hedges at Langley.

The variety Mahdi has been crossed repeatedly at this Station with various other varieties. The seedlings of a cross between Mahdi and Herbert (raspberry) were partly like raspberry with pinnately 5-foliolate leaves and partly like the blackberry in habit. The seedlings of Mahdi x Lucretia are of dewberry habit with the leaves digitately 3- to 5-foliolate. Other crosses were Mahdi x (Mahdi x Lucretia), Mahdi x Agawam, Mahdi x Phenomenal, Mahdi x Mersereau, and Mahdi x *Rubus odoratus.* None of these crosses are of any pomological value.

Robus procerus. Muell. in Boulay *Ronc. Vosg.* No. 6, 7. 1864; Bailey *Gent. Herb.* 1:196. 1923.

R. hedycarpus Focke, subspecies *procerus.* Focke *Spec. Rub.* 3:(386) 162. 1914.

A huge, very thorny blackberry; canes several meters long and 3–4 cm thick, angled and furrowed, thinly downy or pubescent when young, soon becoming glabrous; prickles along the angles, numerous, long, and stout, straight or mostly hooked and compressed. Petioles stout, longer than the lower leaflets, glabrescent, with many smaller, broad-based, hooked prickles; stipules subular. Leaflets 5, rather firm, wintergreen, dark green above and with dense adpressed whitish felt underneath, sharply simply or in the upper half doubly serrate, teeth ovate, shortly mucronate; leaflets obovate, shortly pointed or contracted into a short point, the terminal one roundish obovate, with a long petiolule, lateral ones smaller, narrower, shorter stalked, like the still smaller, almost sessile lower ones somewhat oblique; petiolules and midveins pubescent and very prickly. Inflorescence large, panicled, white tomentose and prickly; flowers numerous, 25 mm across; stamens and pistils numerous. Fruit black, firm, edible.

Western Europe; France and along the Rhine.

To this species belongs the cultivated variety Theodor Reimers, originated in 1889 by Garteninspector Reimers at Hamburg, now widely cultivated in Germany, and introduced into the United States and re-christened as Himalaya. Hybrids were raised at Geneva between the Himalaya and Lucretia (dewberry). Strawberry Flavored blackberry is a hybrid of the Himalaya and the Cuthbert raspberry. Crosses were made at Geneva between Strawberry Flavored and Lucretia (dewberry) and also with Snyder (blackberry).

Rubus ulmifolius var. **inermis.** Focke *Spec. Rub.* **3**:378. 1914; Bailey *Gent. Herb.* **1**:197. 1925.

R. inermis. Willdenow *Enum. Pl. Hort. Berol.* **1**:548. 1809.

A robust thornless blackberry; canes obtusely angled, more or less densely downy from grayish stellate hairs. Petioles shorter than the lower leaflets, unarmed and downy like the canes, stipules subulate; leaflets 3–5, rather firm in texture, green and mostly glabrous above, beneath with adpressed fine whitish felt, finely simply or doubly serrate, usually more irregularly so near the top of the terminal leaflets or on the outer margin of the lower ones, which are obliquely ovate and sometimes obscurely lobed, acute or roundish at the base and with a short sharp point; terminal leaflet longer, obovate-oblong, pointed from the upper third, rounded at the base. Inflorescence panicled. Berries black, edible.

This is a sport of a widely-spread and very variable European bramble, known in European gardens more than 100 years. It was introduced into the United States and put in trade by Luther Burbank under the varietal names Santa Rosa, Sebastopol, and Cory Thornless, which are identical with Willdenow's herbarium type specimens.

CHAPTER III

VARIETIES OF RED AND HYBRID RASPBERRIES

Abundance. *Occidentalis* x *Strigosus.* 1. *Am. Pom. Soc. Rpt.* 160. 1919–20.

According to a letter from the originator, H. J. Schild, Ionia, Michigan, this variety originated in 1907 as a seedling of Conrath pollinated by Cuthbert. It was introduced in 1916 by the New Ulm Nurseries, New Ulm, Minnesota. Plants below medium height, of medium vigor, upright-spreading, very productive; canes dark red, nearly glabrous, very thinly glaucous; prickles slender, weak, numerous; fruit small, roundish, dark purple, dull; flesh firm, sprightly; quality fair; midseason.

Addison. *Occidentalis* x *Strigosus.* 1. *N. Y. Sta. Bul.* 63:678. 1893. 2. Budd-Hansen *Am. Hort. Man.* 2:401. 1903.

Originated on the grounds of L. M. Macomber, North Ferrisburg, Vermont, prior to 1890, in which year it was sent to this Station for trial. Plants vigorous, hardy, moderately productive, propagating from tips; canes purplish red; fruit above medium in size, firm, juicy, with the flavor of the red raspberry; very good.

Alexandra. 1. *Jour. Roy. Hort. Soc.* 37:563. 1911–12. 2. Bunyard *Cat.* 50. 1915–16.

This autumn-fruiting variety was raised by a Mr. Allan, Gunton Park Gardens, England. Plants vigorous and fertile; fruit large, conical, deep red, with a rich flavor.

All Seasons. 1. *Ohio Sta. Bul.* 63:108. 1895.

Mentioned as a red fall-bearing variety. Plants very strong; suckers numerous; fruit medium in size, firm; good.

All Summer. 1. Childs *Cat.* 144. 1893.

This everbearing variety was introduced by John Lewis Childs, Floral Park, New York, in 1893, who obtained it three years previously from Mrs. A. A. Stave, Hailey, Idaho. Her plants were received from California, but the stock came originally from Mexico. Plants stocky, vigorous, productive, resistant to heat and cold; foliage dark green above, whitish below; fruit large, dark red; excellent quality; season July until frost.

Allen. 1. *Horticulturist* 12:133. 1857.

False Red Antwerp. 2. *Gard. Mon.* 4:38. 1862.

Allen Antwerp. 3. Fuller *Sm. Fr. Cult.* 151. 1867.

Scarlet. 4. *Ibid.* 154. 1867.

English Red Cane. 5. Elliott *Fr. Book* 467. 1859.

Much confusion exists regarding the origin of this variety. One account states that it was brought to Cleveland as an unnamed raspberry in 1828 by an English gardener. It was at first called Red Antwerp, but later as that variety came to be known around Cleveland this berry was known as the False Red Antwerp. In 1850 plants were sent to Lewis F. Allen, Black Rock, New York, who introduced the variety under his own name. In another account in 1859, Allen states that he obtained the original plants as an unknown variety from the garden of Hiram Pratt, Buffalo, New York. From various accounts it is evident that two or three sorts were sent out by Allen under his name. Plant vigorous, upright,

suckers freely, hardy; prickles purplish, numerous; flowers imperfect; fruit large, roundish, firm, bright red, of excellent flavor.

Allen Red Prolific. 1. Fuller *Sm. Fr. Cult.* 151. 1867.

Same origin as the Allen. Plants strong, upright, productive; canes unbranched, reddish purple, with long, slender, white prickles; fruit medium, round, light red, juicy, mild.

Allsmeyer. 1. *Wis. Sta. Bul.* **72**:18. 1898.

A seedling red raspberry sent to the Wisconsin Experiment Station in 1897 by E. C. Allsmeyer, DeForest, Wisconsin. Plants vigorous, productive; fruit below medium in size, round, dull red; quality good; midseason.

Alpine. 1. Prince *Pom. Man.* **2**:169. 1832.

William R. Prince imported this variety, the Cretan Red, and a flesh-colored raspberry from the Mediterranean previous to 1832. He believed the three to be closely related, being similar to the Antwerps but having fewer prickles. Fruit of good size with a high and peculiar flavor; season June until September.

Ameliorée Congy. 1. *Rev. Hort.* 88. 1900.

This autumn-fruiting variety was raised from seed of Four Seasons Red in 1886 by M. Congy, chief of fruit culture of the province of Ferrières-en-Brie, France. Plants very vigorous, productive; canes purple; leaves large, thick; fruits large, blunt-conic, light red; quality excellent.

American Red. 1. Prince *Cat.* 1771. 2. Downing *Fr. Trees Am.* 515. 1845.

Before improved varieties of the red raspberry were introduced, the native red was cultivated considerably, and although inferior to the European sorts its greater hardiness made it desirable. The Common Red and the English Red Cane have been incorrectly given as synonyms of American Red, but both are distinct varieties as will be seen in the discussions of these sorts.

Arcola. 1. *S. Dak. Sta. Bul.* **104**:285. 1907.

A wild, red raspberry found near Arcola, Saskatchewan, Canada, and used as a parent in breeding hardy raspberries by Prof. N. E. Hansen of the South Dakota Experiment Station. Plants dwarfish; fruit variable in size and quality.

Arnold Orange. *Occidentalis* x *Idaeus.* 1. Downing *Fr. Trees Am.* 963. 1869.
Arnold's No. 3. 2. *Horticulturist* **24**:273. 1869.

Originated with Charles Arnold, Paris, Ontario, and sent out by him in 1868. Said to be a cross between a white form of *R. occidentalis* and a fall-bearing variety of *R. idaeus*. Plants strong, spreading, with many slender laterals; suckers few; fruit medium in size, roundish conical, pale lemon-yellow changing to light orange; flesh soft, juicy; flavor good.

Arnold Red. *Occidentalis* x *Idaeus.* 1. *Am. Pom. Soc. Rpt.* 108. 1869.
Arnold's No. 2. 2. *Horticulturist* **24**:20. 1869.

Of the same origin as the preceding variety, and the best known of Arnold's seedlings. Plants vigorous, branching, moderately productive; canes dark purple, with numerous stout, slightly purple prickles; suckers excessively; fruit large, red, about the size and shape of Philadelphia but of superior flavor; late, autumn-bearing.

August Black. *Occidentalis* x *Strigosus.* **1.** *Gard. Chron.* 516. 1867. **2.** Downing *Fr. Trees Am.* 963. 1869.

Received by Charles Downing from Thomas Rivers of England with whom it originated about 1860. From the account of the origin of Mr. Rivers' " Black " sorts this is probably a purple raspberry. Canes strong, branching, with numerous greenish prickles; fruit medium in size, roundish oblate, dark red, with slight bloom, soft, subacid.

Autumn Black. *Occidentalis* x *Idaeus.* **1.** *Jour. Hort.* **24**:91. 1860. **2.** Downing *Fr. Trees Am.* 963. 1869.

Raised by Thomas Rivers of England about 1860. It is of the same origin as August Black, and is probably a purple variety. Mr. Rivers propagated it from seeds, evidently not familiar with tip rooting. Fruit medium or large, dark purple, very juicy and agreeable.

Babcock. *Occidentalis* x *Strigosus.* **1.** *N. Y. Sta. Bul.* **63**:678. 1893.

Received at this Station in 1892 from D. W. Babcock, Dansville, New York. Plants vigorous and productive; canes purplish, with numerous weak prickles; fruit crumbles badly.

Bagley Perpetual. **1.** *Mag. Hort.* **24**:510. 1858.

Bagley's Everbearing. **2.** *Am. Pom. Soc. Rpt.* 83. 1858.

This variety originated in New Haven, Connecticut, about 1854, and was introduced in 1858 by Andrew Bridgeman, a florist of New York City. Plants hardy, branching, free of prickles, fruiting on the young canes from the time the old canes cease bearing in July until frost; fruit medium, nearly round, dark crimson, soft, acid; poor quality.

Baker. **1.** *Ohio Hort. Soc. Rpt.* 57. 1868.

A seedling of Four Seasons Red sent out by a Mr. Parnell, Cincinnati, Ohio, about 1868. Fruit short, dark red, soft, sweet.

Barnet. **1.** *Lond. Hort. Soc. Cat.* 196. 1826. **2.** Prince *Pom. Man.* **2**:165. 1832. *Large Red.* **3.** *Mag. Hort.* **3**:23. 1837.

This old English variety is said to have been raised from seed by a nurseryman named Cornwall at Barnet in Hertfordshire, England. It has never been popular in this country owing to lack of hardiness and soft fruit. It is similar to Red Antwerp but differs from that variety in the canes being much inclined to branch and in the prickles being long, slender, and reddish. Plants productive, branching towards the ground; canes long, yellowish green, thickly covered with slender prickles; fruit large, globular, inclining to conical; color deep purplish red; drupelets large; flavor rich, pleasing, without much acidity; early.

Barter. **1.** Wickson *Cal. Fruits* 506. 1889.

Described as a foundling variety largely grown in the foothill regions of California. It was brought under cultivation by William Barter, Penryn, Placer County, California. Plants vigorous and productive; fruit very large, red, round, slightly flattened, firm, of fine flavor.

Bateman Early Red. **1.** *Am. Gard.* **17**:675. 1896.

Mentioned in 1896 as being the earliest red raspberry, with fruit having the shape, and two-thirds the size of that of Cuthbert.

Bath Perfection. 1. *Jour. Pom. & Hort. Sci.* **3**:20. 1922.

Abundance. 2. Laxton Bros. *Cat.* 31. 1923.

According to Grubb in the *Journal of Pomology and Horticultural Science* this variety is identical with the American variety Marlboro. Abundance, of Laxton Brothers, as grown at the East Malling Research Station in England proved identical with Bath Perfection.

Baumforth I. 1. *Can. Exp. Farm Bul.* **56**:42. 1907.

Baumforth's Seedling. 2. *Flor. & Pom.* 185, fig. 1880.

This variety was selected from a lot of seedlings of Fillbasket about 1865 by John Baumforth, Pontefract, England. It was distributed about 1880, and is still occasionally grown in Europe, but is too tender for this country without winter protection. In size, vigor, and productiveness of plant it surpasses its parent; the berries ripen ten days earlier; canes numerous, stout, spreading, glaucous, glabrous; prickles numerous, stout; fruit large, round or somewhat flattened, soft and juicy, rather acid; good.

Baumforth II. 1. *Jour. Pom. & Hort. Sci.* **3**:22. 1922.

This seedling seems to have acquired the name Baumforth and under that name is widely grown in England. Plants vigorous, very productive; canes very numerous, spreading, green, moderately glaucous, glabrous; prickles few or none, very small, dark purplish; fruit conic; drupelets small, very firm, sweet.

Baumforth III. 1. *Jour. Pom. & Hort. Sci.* **3**:23. 1922.

Still another variety is grown under this name at the East Malling Research Station in England. It is badly mixed and in some cases resembles lots grown as Hornet (II).

Beckner. 1. *Mich. Sta. Bul.* **111**:11. 1894.

A chance seedling found about 1855 by J. Beckner, Lafayette, Indiana.

Beckwith. *Occidentalis* x *Strigosus.* 1. *N. Y. Sta. Bul.* **111**:289. 1896.

A chance seedling sent out by M. H. Beckwith, Newark, Delaware, about 1895. Plants similar to Columbian but with lighter colored canes and shorter, more numerous prickles; fruit larger, lighter colored, firmer, and of better quality than Columbian; very late.

Beehive. 1. Bridgeman *Gard. Ass't* **Pt. 111**:135. 1847.

Described in 1847 as a new variety. Introduced by Messrs. Winter & Company of the Linnaean Botanic Garden, Flushing, New York. Fruit large, round, red; ripe in July.

Beehive Improved. 1. *Jour. Pom. & Hort. Sci.* **3**:23. 1922.

Received under this name at the East Malling Research Station in England. Said to consist of two types differing slightly.

Belle de Fontenay. 1. McIntosh *Bk. Gard.* **2**:573. 1855. 2. *Am. Pom. Soc. Rpt.* 241. 1860. 3. *N. Y. Sta. Bul.* **278**:120. 1906.

Amazon. 4. *Gard. Mon.* **17**:333, 368. 1875.

Fontenay. 5. *Am. Pom. Soc. Cat.* 46. 1883.

This old French autumn-fruiting sort was grown from seed by Gartier in Fontenay-aux-Roses, France, previous to 1850, and was introduced into this country in that year. For a number of years it was considered one of the best of the fall-bearing sorts. The

American Pomological Society placed it upon its list of varieties promising well in 1860, and in 1862 upon its list of varieties recommended for general cultivation, where it remained until 1899. As grown at this Station the plants are vigorous, hardy, and moderately productive; suckers numerous; fruit large, long-conic, irregular; drupelets large, moderately firm, dull red, sprightly; good; autumn-fruiting.

Belle de Palluau. 1. *Gen. Farmer* 22:63. 1861. 2. Fuller *Sm. Fr. Cult.* 158. 1867. *Palluau.* 3. *Am. Pom. Soc. Cat.* 46. 1883.

Described by Fuller in 1867 as a new variety from France. It was placed on the list of recommended varieties of the American Pomological Society in 1867, and removed in 1897. During that time it was considered one of the best European varieties in this country. Plants vigorous, branching, productive, not hardy; canes start with numerous short, stiff, purplish prickles; fruit very large, blunt-conic; drupelets large, regular, dark red, moderately firm, juicy, sprightly; very good; early.

Berkeley. 1. Card *Bush-Fr.* 178. 1917.

Card cites the catalog of the Ashley Nursery Company of California as describing this variety as prolific, large, and handsome.

Biggar. 1. *Can. Exp. Farm Bul.* 56:42. 1907.

Grown from seed of an unknown European variety by C. N. Biggar, Drummondville, Ontario. It was the parent of a number of seedlings raised by William Saunders in his raspberry-breeding work. Described as a strong grower and moderately productive; not hardy at Ottawa; fruit medium in size, conic, bright red, moderately firm, juicy, subacid; good; late.

Black Antwerp. 1. *Jour. Pom. & Hort. Sci.* 3:16. 1922.

Commonly grown in certain sections of England. The variety is said to contain many mixtures of little or no value. Plants weak, slender, spreading, moderately productive; canes dark reddish purple, heavily glaucous, glabrous; prickles very numerous and very stout; fruit of good size, conical, dark red, sweet.

Black Hills. 1. *N. J. Hort. Soc. Rpt.* 195. 1900.

Mentioned as being productive, hardy, of good size, dark in color and of moderate quality.

Blair. 1. *Am. Pom. Soc. Cat.* 43. 1901.

Originated in Quebec. Plants hardy; fruit of medium size, round, red; quality very good; midseason.

Brady. 1. *Kan. Hort. Soc. Rpt.* 5. 1906–07.

Propagated from the sole survivor of a lot of Loudon raspberries received from a nursery by Col. John L. Brady, Medicine Lodge, Kansas. Claimed to be a hardy sport.

Bountiful. 1. *Jour. Roy. Hort. Soc.* 37:561. 1911–12. 2. Laxton Bros. *Cat.* 30. 1923.

Originated with Laxton Brothers, Bedford, England, previous to 1912. It is particular as to soils but where it does well is considered worthy of trial in England. Plants of medium vigor, moderately stout, erect, productive; prickles numerous, short, stout, dark purplish; canes glaucous, glabrous; fruit large, conic, rounded at the apex.

Boyle. 1. *Can. Exp. Farms Rpt.* 108. 1900.

On test in 1900. Berries of medium size and quality; midseason.

Bradley. 1. *N. Y. Sta. Bul.* 278:115. 1906.

A seedling found growing on the farm of C. P. Bradley, South Bend, Indiana, about 1896. Plants of medium vigor, healthy, hardy, and productive; fruit large, resembling Marlboro in shape but coarser in general appearance, dark red; drupelets large, inclined to crumble, of good flavor and quality.

Brandywine. 1. *N. J. Hort. Soc. Rpt.* 23. 1876. 2. *Rural N. Y.* 54:710. 1895.

Susqueco. 3. *Rec. Hort.* 2:58. 1868.

Wilmington. 4. *Horticulturist* 30:306. 1875.

This old variety is said to have originated about 1870 with a Mr. Miller, also the originator of the Miller raspberry, who lived by Brandywine Creek, near Wilmington, Delaware. At first it was known as Wilmington, and later was sent out by Edward Tatnall of Wilmington as Susqueco, the Indian name of the stream. It came, however, to be generally known as Brandywine, and under that name became one of the leading market varieties of its time. The stock was badly mixed as large quantities of Bristol were sold as Brandywine. It was placed in the fruit list of the American Pomological Society in 1877, and still remains there. Plants upright, rather weak, not hardy, and unproductive; suckers freely; canes reddish brown, with thin bloom; prickles none; fruit small, round, bright scarlet; flesh firm, juicy, rather insipid; quality fair; early midseason.

Brant. *Occidentalis* x *Strigosus.* 1. *N. Y. State Fr. Test. Assoc. Cat.* 1924–25.

A cross between Smith (I) and June, originated at this Station in 1913. Introduced in 1925 by the New York State Fruit Testing Association, Geneva, New York, as worthy of trial. Plants vigorous, upright, attacked but slightly by anthracnose and mosaic, usually hardy; propagated by tips; canes stocky, green becoming reddish chocolate-brown, glabrous, glaucous; prickles numerous, medium to strong, tinged red at the tips; leaflets usually 3, large, round-oval; margin finely serrate, in single series, frequently lobed; petiole long, medium thick, prickly, nearly glabrous; fruit picks easily, ships well, large, uniform, round-conic, with thick bloom; drupelets medium in size, with strong coherence, dark dull purple, medium to juicy, rather firm, subacid to sprightly; good; late, about with Columbian.

Brentford Cane. 1. *Lond. Hort. Soc. Cat.* 197. 1826. 2. Downing *Fr. Trees Am.* 516. 1845.

An old English variety little grown in this country and never of value here. Canes strong, branching, with purplish prickles; fruit of medium size, oval-conical; color dark dull red.

Brentford Red. 1. Prince *Pom. Man.* 2:167. 1832.

Said by Prince to bear fruit of excellent quality and high flavor, oval in shape, of good size, and dark red in color; prickles purplish. Frequently produces a second crop in August.

Brighton. 1. *Can. Exp. Farm Bul.* 56:47. 1907.

This variety of unknown parentage was originated in 1887 by Dr. William Saunders, Ottawa, Ontario. It was introduced in 1907 by the Central Experimental Farm at

Ottawa. The fruit is of the type of Cuthbert and similar to Count, a variety of the same origin. It differs from Count in being a darker red color, somewhat smaller and not as firm. Brighton has a purplish cane and Count has a bright red cane with only a purplish tinge. Plants tall, vigorous, upright-spreading, hardy; canes stocky, tinged with reddish brown; prickles medium in number, thick and strong; leaflets large; fruit large, roundish; drupelets somewhat crumbly; color dark red, glossy; flesh rather soft, mildly subacid, of pleasing flavor; quality good; early midseason.

Brilliant. 1. *N. Y. Sta. Bul.* **278**:115. 1906.

A chance seedling found growing in a woodpile in 1900 by John Collison, Bridgeville, Delaware; introduced in 1902 by Myer & Son of the same place. Plants medium in size and vigor, slightly drooping, rather tender to cold, productive; canes numerous, slender; prickles slender, few; leaflets small; fruit below medium in size, roundish; drupelets medium in size and number; color bright red; flesh firm, mildly subacid; quality good; midseason.

Bristol. 1. *Cult. & Count. Gent.* **34**:136. 1869. 2. *N. J. Hort. Soc. Rpt.* 23. 1876.

Found wild near Bristol, Pennsylvania. Plants vigorous, hardy, suckering excessively; canes with whitish bloom; leaflets narrow, pointed; fruit of medium size, not as large or firm as Brandywine.

Buckeye. 1. Scarff *Cat.* 1910.

Of unknown origin. Sent out by W. N. Scarff, New Carlisle, Ohio, in 1910. It has no value as grown at this Station. Plants vigorous, hardy, upright-spreading, productive; canes numerous, glaucous; prickles medium in number; fruit medium in size, broad-conic, soft, crumbly, dark red, sprightly; quality fair; late; autumn-fruiting.

Burlington. 1. Fuller *Sm. Fr. Cult.* 157. 1867.

Prosser. 2. *Gard. Mon.* **11**:238. 1869.

Originated about 1865 with Benjamin Prosser, Burlington, New Jersey. At his death his son sent out a mixture under the name Prosser. In 1866 the name was changed to Burlington, and for a while plants were sold at five to ten dollars each. Plants moderately vigorous and productive; prickles very numerous, slender, greenish, tinged brown; fruit large, roundish conical; drupelets small, compact, bright red, very firm, juicy, sweet and of good quality.

Burns. 1. *Am. Pom. Soc. Rpt.* 43. 1875.

A seedling from A. M. Burns, Manhattan, Kansas, said to withstand drouth and heat. Fruit of medium size and quality.

Canada Red. 1. Prince *Pom. Man.* **2**:168. 1832.

Described by Prince as growing in great abundance along the roadsides near Montreal, Canada. Called by him *R. canadensis*. The canes are thickly set with brownish prickles; the fruit is of medium size with a high and rather peculiar flavor.

Canadian Red. 1. *Jour. Pom. & Hort. Sci.* **3**:23. 1922.

As grown in England this sort resembles Bath Perfection; said to be the American Marlboro, but is taller, with smaller, lighter red fruit.

Cardinal. *Strigosus* x *Occidentalis.* **1.** *U. S. D. A. Pom. Rpt.* 265. 1892. **2.** *Mich. Sta. Bul.* **111**:13. 1894.

Griesa. **3.** *Mich. Sta. Bul.* **104**:72, 74. 1894.

Cardinal is a purple raspberry which can be grown farther north and farther south than any other of its kind. Perhaps no other raspberry can be grown as far south. The plants are very productive, vigorous, and healthy, but the variety is not as much grown as either Columbian or Shaffer, in localities where purple sorts are commonly planted. It is a valuable sort for the central west. On the grounds of this Station the canes do not sucker but propagate from tips from which they root rather reluctantly. Old plants sometimes send out suckers. Cardinal originated with A. H. Griesa, Lawrence, Kansas, in 1888, and was introduced by him about 1891 under the temporary name Griesa. The variety is supposed to have come from a seed of Shaffer. It was added to the American Pomological Society's recommended list of fruits in 1909.

Plants vigorous, spreading, hardy, productive, contract mosaic slowly; propagated usually from tips; canes stocky, reddish green, dull, very glaucous; prickles small, slender, few, red at the tips; leaflets 3–5, roundish oval, often lobed, dull, rugose, with serrate margins; petiole with short prickles, glabrous, glaucous. Flowers late; pedicels prickly, glandular, almost glabrous; calyx prickly. Fruit very late, picks easily; medium in size, broadly hemispherical, dark purple, dull, with heavy bloom; torus nearly smooth, roundish, releasing the berry readily; flesh juicy, firm but tender, sweet, aromatic, resembling in flavor the red raspberry; quality good to very good.

Carleton. **1.** *N. Y. Sta. Bul.* **278**:116. 1906.

Received at this Station about 1896 from J. Craig, Ottawa, Canada. Plants moderately vigorous, hardy, productive; fruit medium in size; drupelets large, inclined to crumble; flavor and quality good.

Caroline. *Idaeus* x *Occidentalis.* **1.** *Cult. & Count. Gent.* **43**:151. 1878. **2.** *N. Y. Sta. Bul.* **63**:69. 1893.

Caroline originated with S. P. Carpenter, New Rochelle, New York, in 1877, and is supposed to be a seedling of Orange crossed by a Golden Cap. For a number of years Caroline was popular as a home berry because of the high quality and beautiful orange color of the fruit. It may be propagated either by suckers or by tips. The American Pomological Society placed Caroline in its catalog in 1881 where it still remains. Plants vigorous, upright, hardy and very productive; canes light colored, stocky, with few, slender, green prickles; fruit of medium size, roundish oblate, of orange-pink color, changing to a salmon tinge when fully ripe, juicy, soft; very good in flavor and quality.

Carter Prolific. **1.** *Jour. Hort.* **3**:409. 1862. **2.** *Am. Hort. Ann.* 98. 1870. **3.** *Jour. Pom. & Hort. Sci.* **3**:24. 1922.

Described by A. S. Fuller in the *American Horticultural Annual* for 1870 as an old English variety almost out of cultivation in this country. It is still grown somewhat in England. Canes strong with purplish spines; leaves variegated with white; fruit large, blunt-conical, deep scarlet, with slight bloom; drupelets medium compact; flesh rather firm, moderately juicy, sweet; good.

Cassel. 1. *Can. Exp. Farms Rpt.* 108 1900.

On trial at the Dominion Experimental Farm, Ottawa, Ontario, in 1900. Berries described as of medium size and quality; midseason.

Catawissa. *Occidentalis* x *Strigosus.* 1. *U. S. Pat. Off. Rpt.* 318. 1854. 2. *Mag. Hort.* 21:315. 1855.

Catawissa originated as a chance seedling in the graveyard of a Quaker meeting-house in the village of Catawissa, Columbia County, Pennsylvania. It attracted the attention of a caretaker who observed it bearing fruit in the fall. The plant was removed to his garden and thence to that of Joshua Pierce, Washington, D. C., who introduced it in 1854. The strong, branching canes seldom sucker and the tips root only with difficulty. Plants vigorous, very productive and somewhat tender; prickles few; fruit medium in size, flattened, dark reddish purple, covered with a thick bloom, soft, juicy, sprightly; good; midseason, autumn-fruiting. Catawissa was placed in the fruit catalog of the American Pomological Society in 1867 and removed in 1883.

Cavalier. 1. *S. Dak. Sta. Bul.* 104:286. 1907.

A native red raspberry obtained by Prof. N. E. Hansen, Brookings, South Dakota, from Cavalier County, North Dakota, and used by him as a parent in breeding hardy varieties. Plants vigorous, suckering freely; fruit of good quality.

Cayuga. 1. *Am. Pom. Soc. Rpt.* 207. 1922. 2. *N. Y. Sta. Bul.* 497:15. 1923.

Cayuga is the outcome of an effort at the New York State Agricultural Experiment Station to secure a variety to precede Cuthbert, that standard sort being too late in season for many northern markets. The plants of Cayuga are quite as vigorous as those of Cuthbert, with which it must compete and be compared, and are much more productive, great productiveness being the most remarkable attribute of this new raspberry. The berries are much like those of Cuthbert in size, color, and flavor. In shape they are a little less conic than the well-known fruits of Cuthbert. The drupelets, however, are larger and hence the berries do not seem to be so seedy. The suckers are numerous and plants can be propagated rapidly. The season is a few days or a week before that of Cuthbert. It promises to become a valuable sort for commercial canning. Cayuga was originated by the New York State Agricultural Experiment Station, Geneva, New York, in 1911 as a cross between June and Cuthbert. It was introduced in 1922.

Plants tall, vigorous, upright-spreading, hardy, very productive, contract mosaic rapidly but are only moderately injured; propagated from suckers; canes numerous, somewhat stocky, greenish, heavily glaucous, with very few small glands at the tips; prickles small, slender, weak, very few to none, greenish; leaflets usually 5, roundish ovate, dull, dark green, rugose, with dentate margins; petiole long, glabrous, slightly glaucous. Flowers early; pedicels with few prickles, glandular, slightly pubescent; calyx prickly. Fruit midseason, midway between June and Cuthbert; autumn-bearing under favorable conditions; much like Cuthbert in size, color, and flavor; large, round-conic, slightly glossy and finely pubescent; torus nearly smooth, blunt, whitish; drupelets of medium size or larger, strongly coherent; cavity-scars white and conspicuous; flesh juicy, firm, tender, aromatic, sprightly becoming sweet, highly flavored; very good in quality.

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Champion. 1. *Jour. Roy. Hort. Soc.* **29**:LII. 1904–05.

Received the Award of Merit of the Royal Horticultural Society in 1904. Plants vigorous; fruit large, bluntly round, borne in large clusters, dark red, very sweet.

Champlain. 1. *Am. Gard.* **11**:141. 1890. 2. *N. Y. Sta. Bul.* **63**:690. 1893.

Said by J. T. Macomber, Grand Isle, Vermont, to be a chance seedling found in his father's garden about 1880. It was introduced in 1892 by Ellwanger & Barry, Rochester, New York. Plants vigorous, productive, with a tendency for the bark to split and curl; prickles numerous and small; fruit medium to large, pale yellow, soft, juicy, nearly sweet, excellent in flavor; quality best.

Charles the Bold. 1. *Mich. Sta. Bul.* **111**:15. 1894.

One of Charles Arnold's hybrids, Paris, Ontario, sent out in 1877.

Chilische. 1. Dochnahl *Führ. Obstkunde* **4**:83. 1860.

Described as coming from Chili. Known in gardens but seldom esteemed. Plants vigorous, tall, very productive; prickles few; fruit very large, short-ovate, dark red, very aromatic.

Christine. 1. *Rural N. Y.* **45**:640. 1886.

Sent to the experiment grounds of the *Rural New-Yorker* in 1886 by E. P. Roe. Plants not hardy; fruit large, conical; good; late.

Citizen. *Occidentalis* x *Strigosus.* 1. Card *Bush-Fr.* 179. 1898.

A cross between Gregg and Cuthbert, originated by William Saunders, London, Ontario. Very productive. Considered promising at first but less so later.

Clarke. 1. *Horticulturist* **17**:378. 1862. 2. *N. Y. Sta. Bul.* **63**:681. 1893.

Raised from seed by E. E. Clarke, New Haven, Connecticut, about 1857. Considered as more resistant to heat and cold and better adapted to a light sandy soil than others of its class. It was placed in the fruit catalog of the American Pomological Society in 1869 where it still remains. Plants vigorous, strong, upright, branching, very productive; suckers numerous; prickles few, whitish; foliage large and thick; fruit large, roundish conical, bright crimson, sweet, rich, highly flavored; very good.

Cline. 1. *N. Y. Sta. Bul.* **63**:681. 1893.

A chance seedling received at this Station in 1893 from G. W. Cline, Winona, Ontario. Plants moderately vigorous, medium in height, healthy, hardy, unproductive; fruit below medium in size; drupelets medium to large, firm, sweet, dark red; quality fair; season short, very early.

Cluster. 1. *Am. Pom. Soc. Cat.* 27. 1897.

Originated in Oregon. Listed in the catalog of the American Pomological Society in 1897. Recommended for cultivation in Oregon and Washington.

Cole Prolific. 1. *Mich. Sta. Bul.* **111**:15. 1894.

A chance seedling found growing wild on the farm of R. D. Cole, Port Dalhousie, Ontario, and cultivated by him.

Coleman. 1. *N. Y. Sta. Bul.* **63**:681. 1893.

Received at this Station about 1890 from M. H. Coleman, Geneva, New York. Plants medium in vigor and productiveness; fruit large, moderately firm, juicy, nearly sweet; quality very good.

Colonel Wilder. 1. *Horticulturist* **3**:135, fig. 1848–49. 2. Hoffy *N. Am. Pom.* Pl. 1860.

Grown from seed of Fastolff by Dr. W. D. Brincklé of Philadelphia. It first fruited in 1847 and was named by the originator in honor of Col. Marshall P. Wilder. Plants vigorous, strong, productive; prickles whitish; fruit large, roundish, yellowish white or cream color, appearing semi-transparent, soft, juicy, sweet, of fine flavor; very good.

Colossal. *Occidentalis* x *Strigosus.* 1. *U. S. D. A. Pom. Rpt.* 265. 1892.

A seedling of Shaffer, which it closely resembles. It was first brought to notice when it was sent to the United States Department of Agriculture in 1892 by I. F. Street, West Middleton, Indiana; of better color and more resistant to drouth than Shaffer.

Columbian. *Strigosus* x *Occidentalis.* 1. *Ont. Fr. Gr. Assoc. Rpt.* **24**:118, fig. 1892. 2. *N. Y. Sta. Bul.* **63**:678. 1893. 3. *Ibid.* **278**:123. 1906.

Columbian is the best known and most prized of the hybrid raspberries. It holds this place by virtue of large size, firm flesh, handsome appearance, and high quality of the fruit; and the hardiness, healthiness, and phenomenal productiveness of the plants. It is now more largely grown for commercial canning than any other purple raspberry, and when canned is superior to any other in appearance and flavor. Columbian is sometimes confused and is often compared with Shaffer, an older hybrid sort. The fruits of Columbian are smaller, firmer, and hang on the plants longer than those of Shaffer; the plants are more vigorous and more productive, and the fruiting season is later. Shaffer excels Columbian only in the greater hardiness of the plant. The leaves are somewhat smaller, with more yellow than in those of Shaffer. The fruit is darker in color than that of Shaffer and is sweeter and better flavored. The plants, unfortunately, are a little more subject to winter injury than those of Shaffer. This variety was originated in 1888 by J. T. Thompson, Oneida, New York. It is a seedling of Cuthbert which was probably pollinated by Gregg, a blackcap growing near by, and was introduced in 1891. The American Pomological Society added Columbian to its list of recommended fruits in 1897.

Plants very tall, vigorous, upright-spreading, hardy but less so than Shaffer, very productive, contract mosaic slowly, severely injured, susceptible to crown-gall; propagated from tips; canes very stocky, dull, reddish brown, glabrous, thinly glaucous; prickles strong, numerous, light green; leaflets usually 3, large, oval, rugose, glabrous, lighter green than Shaffer, with serrate margins; petiole long, prickly, nearly glabrous. Flowers late, large, in prickly clusters; pedicels slender; calyx small, pubescent. Fruit late, season begins soon after Shaffer but continues after the season of that variety has closed; large but slightly smaller than Shaffer, broadly round, dull purple, somewhat darker than Shaffer; torus small, rough, blunt, releasing berries easily although the fruit drops but little; drupelets large; flesh juicy, firmer than Shaffer, sprightly, very aromatic; quality good.

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Common Red. 1. Prince *Treat. Hort.* 39. 1828. 2. Prince *Pom. Man.* **2**:166. 1832.

From Prince's description in 1832 it seems that his Common Red is not the same as the American Red of other authors, although frequently given as a synonym of that variety. He stated that it was a native of this state, growing naturally in the Catskill Mountains. The fruit was esteemed for dessert and was used in large quantities in the making of raspberry brandy. At that time it was the only variety cultivated largely for the New York market, there being over one hundred acres devoted to its culture on Long Island. Prince described the shoots as dark in color, very long, often reaching a length of ten or twelve feet, or even more. This unusual vigor would indicate a hybrid origin. On the current year's growth the basal prickles are purplish in color, those above being greenish, with purplish tips. The fruit is of medium size, very early and of fine flavor.

Condor. 1. *Gard. Chron.* 3rd Ser. **34**:82,194, fig. 1903.

A cross between Red Antwerp and Superlative which originated with George Pyne, Topsham, Devon, England. Plants vigorous, productive; fruit ripens later than that of Superlative and continues until the middle of August.

Cook. *Occidentalis* x *Strigosus.* 1. *Minn. Sta. Bul.* **39**:227. 1894.

Reported to the Minnesota Station in 1894 by Dewain Cook, Windom, Minnesota, as exceedingly hardy and more productive than other varieties grown by him. Plants very tall, thrifty; fruit small, dark red, juicy; poor.

Cope. 1. *Horticulturist* **8**:188. 1853.

President Cope. 2. *Mag. Hort.* **17**:215. 1851.

Originated with Dr. W. D. Brincklé of Philadelphia about 1850, and named by him in honor of Caleb Cope, vice-president of the American Pomological Society for Pennsylvania in 1852. Plants moderately vigorous, productive; prickles numerous, short, purplish; fruit large, blunt-conic, light red, firm, sweet and good.

Count. 1. *Can. Exp. Farm Bul.* **56**:47. 1907.

Grown from seed of Biggar in 1887 by William Saunders, director of the Dominion Experimental Farms, Ottawa, Canada. Introduced about 1907. Count is very similar to Brighton, the differences between the two being mentioned in the description of the latter variety. Plants vigorous, hardy, productive; fruit large, roundish, bright red, moderately firm, subacid, juicy, with a pleasant but not high flavor; very early.

Coutant. 1. Budd-Hansen *Am. Hort. Man.* **2**:403. 1903. 2. *N. Y. Sta. Bul.* **278**:116. 1906.

Received at this Station in 1896 from S. L. Quimby, Marlboro, N. Y. Plants vigorous, upright, moderately hardy, moderately productive; fruit above medium in size, light red, firm, inclined to crumble; flavor and quality fair.

Craig. 1. *Mich. Sta. Bul.* **111**:16. 1894. 2. *Can. Exp. Farm Bul.* **56**:47. 1907.

A seedling of unknown parentage originated about 1884 by William Saunders, Ottawa, Canada. It was named in honor of Prof. John Craig, then horticulturist of the Central Experimental Farm at Ottawa. Plants vigorous, not very hardy at Ottawa, productive; fruit above medium in size, roundish to conical, bright red; drupelets large, firm, moderately juicy, mildly subacid; of good flavor and quality; midseason.

Cretan Red. 1. Prince *Treat. Hort.* 40. 1828. 2. Prince *Pom. Man.* 2:169. 1832.

Imported from the Mediterranean a short time previous to 1832 by William Prince. It resembles the Antwerp type in foliage but differs in having fewer prickles; plants upright, hardy; branches dark gray; prickles few; leaflets narrow; fruit of medium size, roundish, inclining to conical, dark purplish red, subacid; good; season long, late.

Crimson Beauty. 1. *W. N. Y. Hort. Soc. Rpt.* 18. 1883. 2. *N. Y. Sta. Bul.* 63:681. 1893.

This variety was found growing in a patch of Imperial in 1875 by Dr. J. Stayman, Leavenworth, Kansas. It was purchased by A. M. Purdy, Palmyra, New York, who named it Crimson Beauty and introduced it in 1881. Neighbors of Dr. Stayman knowing the origin, believed it to be nothing new and sent out Imperial for Crimson Beauty, so that the stock became mixed. The flowers are deficient in pollen, causing the variety to be unproductive unless planted near a suitable pollinizer. Plants vigorous, tall, upright, unproductive; prickles numerous; fruit medium, dull red, unattractive, inclined to crumble, drops readily when ripe, rather soft; good; early.

Crimson Cluster. 1. *N. Y. Sta. Rpt.* 278. 1890.

Plants described as fairly vigorous, producing suckers close to the old canes, unproductive; fruits large, firm and of fine appearance.

Crookston. 1. *S. Dak. Sta. Bul.* 104:287. 1907.

A native found in the Red River Valley near Crookston, Minnesota, by Prof. N. E. Hansen of the South Dakota Experiment Station, who has used it as a parent in breeding hardy varieties for the Northwest. Vigorous and hardy.

Crystal. 1. *N. J. Hort. Soc. Rpt.* 20. 1887.

Crystal White. 2. *N. Y. Sta. Bul.* 63:690. 1893.

Originated by A. J. Caywood, Marlboro, New York, prior to 1888. Plants moderately vigorous, pale, rather tender to cold, moderately productive; fruit of medium size, clear pale yellow, moderately firm, juicy; flavor and quality good; season a few days earlier than Golden Queen.

Cushing. 1. *Horticulturist* 1:177. 1846–47. 2. Hoffy *N. Am. Pom.* Pl. 1860.

Cushing was grown from seed of Double Bearing in 1845 by Dr. W. D. Brinckle of Philadelphia, and named in honor of J. P. Cushing of Boston. Plants moderately vigorous and productive; prickles numerous, strong, brownish; leaflets large and thin; fruit large, roundish conical, regular; drupelets small, compact, juicy, sprightly; good; season June and sometimes October.

Cuthbert. 1. *Horticulturist* 30:306. 1875. 2. Downing *Fr. Trees Am.* 3rd App. 183. 1881. 3. *N. Y. Sta. Bul.* 63:681. 1893.

Queen of the Market. 4. *Gard. Mon.* 22:16. 1880.

Quimby Favorite. 5. *N. Y. Sta. Bul.* 36:639. 1891.

Cuthbert is now the most commonly grown red raspberry in America, chiefly so because it adapts itself better to the varied climates and soils of raspberry regions than any other red variety. Cuthbert seems to grow best on sandy land, but thrives on a wide range of

CUTHBERT

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soils, and is as hardy to cold and endures heat as well as any other red raspberry. The plants are usually healthy and productive, but are more seriously affected by leaf curl than almost any other sort, and are quite susceptible to the dreaded mosaic. The faults are that the plants are not as productive as those of a good commercial sort ought to be and the crop ripens too late for many northern markets. The berries are of handsome red color, medium firm of flesh, and of very good quality when not overripe. As the berries pass maturity, however, the quality deteriorates and heavy bloom detracts from the attractiveness of the fruits. Cuthbert was found as a chance seedling by Thomas Cuthbert in his garden at Riverdale, now a part of New York City, about 1865. It was thought the variety might be a seedling of Hudson River Antwerp since it came up near a bed of that sort. The variety was not disseminated until about 1880, but since that time it has been widely grown. The berry was grown in different localities under various names but for the last quarter-century it has been known only as Cuthbert. The American Pomological Society added the variety to its list of recommended fruits in 1881.

Plants tall, vigorous, upright-spreading, hardy, not very productive, very susceptible to leaf curl, contract mosaic slowly, moderately injured; propagated from suckers; canes numerous, somewhat stocky, light green becoming yellowish brown, with a very thin, whitish bloom, with eglandular tips; prickles very small, slender, numerous, green or slightly tinged red at the tips; leaflets usually 5, medium in size, pale green, very light colored beneath on the bearing canes, often curved, long-oval, dull, rugose, with serrate margins; petiole slender, glabrous, slightly glaucous. Flowers medium in season; pedicels eglandular, pubescent; calyx prickly. Fruit late, season long; medium to large, uniform, retains size well through the season, conical, dull, dark red, with heavy bloom; torus roughish, pointed; drupelets small, very uniform, with strong coherence; cavity-scars conspicuous; flesh juicy, of but medium firmness, sweet, rich, aromatic; very good in quality.

Deacon. 1. *Can. Exp. Farm Bul.* **56**:47. 1907.

Originated by William Saunders, Ottawa, Canada. Plants upright, vigorous and productive; prickles numerous, slender; fruit medium in size, roundish, irregular, deep red; drupelets large, crumbly, soft, subacid; flavor and quality good; not large enough or firm enough to be of much value; midseason.

Delaware. 1. *N. J. Hort. Soc. Rpt.* 23. 1876.

Described in 1876 as a new seedling recently raised from Hornet (I); included in the fruit catalog of the American Pomological Society from 1881 to 1883. Plants less hardy than Cuthbert; fruit large, conic, red; lacking in quality.

Devon. 1. Bunyard *Cat.* 49. 1915–16. 2. *Jour. Pom. & Hort. Sci.* **3**:24. 1922.

Raised by George Pyne of the Denver Nurseries, Topsham, Devon, England, who introduced it in 1904. Plants vigorous and very productive on moist soils; canes numerous, stout, upright, purplish, heavily glaucous, glabrous; prickles numerous, short, stout; fruit very large, oblong-conic to roundish, moderately firm; late.

Diadem. *Occidentalis* x *Idaeus*. 1. *Ohio Hort. Soc. Rpt.* 114. 1887–88.

Originated with Charles Arnold, Paris, Ontario, sometime previous to 1875. Plants lacking in vigor; fruit large, ovate, red; quality good; early.

Dictator. *Occidentalis* x *Strigosus.* **1.** Burbank *Cat.* 28. 1893.

A cross between Shaffer and Gregg, raised by Luther Burbank, Santa Rosa, California. Described as strong growing, resembling Shaffer but shorter; berries large, bright red.

Donboro. **1.** *N. Y. Sta. Bul.* **298**:57. 1908.

A seedling of Loudon x Marlboro originated at this Station in 1898 and sent out for trial in 1908. Donboro resembles Marlboro in shape and color, and equals this parent in flavor and quality. Plants of medium height and vigor, upright-spreading, hardy except in severe winters, very productive; suckers numerous; canes medium in size, dull brown, glabrous; prickles few, slender; leaflets below medium in size, dark green; fruit large, regular, roundish ovate; drupelets medium, cohering well; color dark red when fully ripe, firm, sweet, mild; good; midseason.

Dora. **1.** *Can. Exp. Farms Rpt.* 108. 1900.

On trial at the Dominion Experimental Farm at Ottawa in 1900. Fruit of medium size and quality; late.

Double Bearing. **1.** McMahon *Am. Gard. Cal.* 518. 1806. **2.** Downing *Fr. Trees Am.* 517. 1845.

An autumn-fruiting sort of the Antwerp type once esteemed for its fall crop. Imported in 1843 by Robert Buist of Philadelphia, and by William Prince about fifteen years earlier. Comparatively hardy with large, late, dull red fruit.

Downing. **1.** Fuller *Sm. Fr. Cult.* 160. 1867.

A seedling of Orange raised by Charles Downing, Newburgh, New York. Plants strong, erect, not hardy, productive; prickles short, stout; leaflets very large, dark green, flat; fruit large, regular, conical, bright red, firm, juicy, sweet and rich.

Duhring. **1.** *Gard. Mon.* **8**:310. 1866. **2.** Fuller *Sm. Fr. Cult.* 160. 1867.

A seedling of Hornet (I) which originated with Henry Duhring, Belmont, Pennsylvania, who exhibited fruit of it before the Pennsylvania Horticultural Society in 1862; introduced by Henry A. Dreer of Philadelphia. Plants vigorous, fairly hardy and productive; prickles numerous, weak, slightly purplish; fruit large, roundish conical, bright red, firm, rich and of excellent flavor.

Duncan. *Occidentalis* x *Strigosus.* **1.** Card *Bush-Fr.* 180. 1898.

A cross between Gregg and Cuthbert, raised by William Saunders, London, Ontario. Described as having strong, vigorous, very productive canes, propagating both by suckers and by tips; fruit large, purple, better quality than Shaffer; late.

Dyack Seedling. **1.** *Horticulturist* **1**:178. 1846–47.

Imported by Robert Buist of Philadelphia about 1840 and known only as the parent of Orange.

Early Prolific. **1.** *N. J. Hort. Soc. Rpt.* **2**:13. 1877. **2.** *N. Y. Sta. Rpt.* 324. 1884.

Originated with O. L. Felton, Merchantville, New Jersey, from seed of Philadelphia. It was first exhibited at the Centennial Exposition in 1876. Productive in the North but not in the South. As grown at this Station the plant is very productive, hardy and nearly

free from prickles; fruit large, roundish, red; drupelets medium in size, moderately firm; flavor harsh and acid.

Eastern King. 1. *Mich. Sta. Bul.* **111**:22. 1894.

Discovered about 1864 by O. A. Hill, Westbrook, Maine, as a chance seedling on a lot that had formerly been a nursery. Canes stout, half hardy; fruit large, dark red, juicy and very sweet; earlier than Cuthbert.

Eaton. 1. *Mich. Sta. Bul.* **206**:58. 1903. 2. *N. Y. Sta. Bul.* **278**:116. 1906. 3. *U. S. D. A. Yearbook* 479, Pl. XLVI. 1908. 4. Hedrick *Cyc. Hardy Fr.* 276. 1922.

Alton. 5. Card *Bush-Fr.* 176. 1917.

Iowa. 6. *Ibid.* 188. 1917.

Although it originated in the Middle West, Eaton is now popular only in New England where the plants seem to be unusually productive and hardy. The variety is grown rather commonly in some parts of eastern New York, but is not a favorite in other parts of the state. There are several serious faults of fruit and plant: The berries crumble badly; the drupelets are very large so that the fruits are coarse in appearance; the quality is poor; and the berries do not separate readily from the torus. The faults of the plants are that they droop almost to the ground making them hard to manage; and there are seldom enough canes to make the variety productive. An unusual characteristic of the canes is that they are nearly thornless. Eaton was found as a chance seedling by Ulysses Eaton, Cambridge City, Indiana, in 1885. Although disseminated locally, the variety was never widely introduced until Amos Garretson, Pendleton, Indiana, became impressed with its value in 1898 and propagated it extensively. At this Station and elsewhere plants received under the names Alton, Idaho, and Iowa have all proved to be Eaton. There is, however, an autumn-bearing berry called Idaho which is quite distinct.

Plants dwarfish or medium tall, of moderate vigor, drooping, with distinct tendency to branch, very hardy, variable in yield, contract mosaic slowly; propagated by suckers; canes few, slender, greenish tinged with brown, becoming dark red, slightly glaucous, with eglandular tips; prickles very small, slender, weak, very few, with a slight reddish tinge; leaflets 3–5, roundish oval, dark green, dull, rugose, crumpled, with finely serrate margins; petiole medium in length and thickness, nearly glabrous. Flowers early; pedicels glandular, pubescent; calyx prickly. Fruit early midseason, retains its size well, large, round-conical, clear bright, durable red, adheres very tenaciously to the torus which is rough and roundish; drupelets very large, coarse in appearance, broadly grooved, cohere poorly causing the fruit to crumble; flesh juicy, firm, rather acid, with an agreeable flavor; quality good for culinary purposes only, otherwise inferior.

Elizabeth. 1. *Gard. Mon.* **12**:279. 1870.

Originated with D. W. Herstine of Philadelphia from seed of Allen supposed to have been fertilized by Philadelphia which grew near by. Elizabeth was named, together with several other of Mr. Herstine's varieties, by a committee from the Pennsylvania Fruit Growers Society who visited his grounds in 1870. Plants strong, productive; suckers medium in number; prickles numerous, purple; foliage dark green, rugose; fruit very large, round, bright red, firm; drupelets large; flavor delicious; late.

Ellisdale. *Occidentalis* x *Strigosus.* 1. *Gard. Mon.* 6:26. 1864.

Ellisdale was found in 1856 by J. E. Johnson in Pottawattamie County, Iowa It was introduced by H. A. Terry, Crescent City, Iowa. The American Pomological Society placed Ellisdale in its fruit list in 1869 for culture in the states near the place of its origin, but removed it at the following session. Plants vigorous, propagating from tips, hardy, productive; fruit large, roundish oval, regular; drupelets medium firm, juicy, dark red, rich and good; midseason.

Elm City. 1. *Rec. Hort.* 2:56. 1868.

Described as new in 1868; supposed to have originated in New Haven, Connecticut. Similar to Philadelphia in size and flavor of fruit; hardy; early.

Elsie. 1. Downing *Fr. Trees Am.* 966. 1869.

A seedling raised by Samuel Miller, Bluffton, Missouri. Fruit very large and excellent.

Emily. 1. *Horticulturist* 3:187. 1853.

A seedling of Col. Wilder raised by Dr. William D. Brinckló of Philadelphia about 1850 which proved unworthy of dissemination. Plants vigorous, very productive; prickles white; fruit large, conical, often shouldered, light yellow.

Emmett. *Occidentalis* x *Strigosus.* 1. *Mich. Sta. Bul.* 129:10. 1896. 2. *Rural N. Y.* 57:23. 1898.

Sent to the trial grounds of the *Rural New-Yorker* in 1895 as new by A. C. Griesa & Brother, Lawrence, Kansas. Plants vigorous; fruit round, purple; of fair quality; late midseason.

Empire 1. Card *Bush-Fr.* 183. 1917. 2. *Am. Pom. Soc. Rpt.* 161. 1920. 3. Hedrick, *Cyc. Hardy Fr.* 276, fig. 1922.

A few years ago Empire was heralded as a very promising new red raspberry and was largely planted in the eastern part of New York. The assets ascribed to it were hardiness productiveness, vigor, and healthiness of the plants; and large, handsome, firm, well-flavored fruits. But the variety has been a disappointment to most New York berry growers who plant it. The plants seem to lack that subtle thing called constitution, and after a few years in the plantation go to pieces. In the prime of the plantation the plants are so hardy as to need no winter protection in New York; are equal to any other variety in productiveness, and are unusually vigorous, reaching a height of six or eight feet. The berries, when plantations are at their best, average larger than those of the well-known Cuthbert, are about the same in color, ripen a little earlier, and have a longer picking season. The fruits are mild, rich and sweet, and take rank among the very best red raspberries in quality. The texture is firm and the berries stand shipment well and keep long. Despite this array of good characteristics, which would seem to put Empire among the best commercial red raspberries, it is, as has been said, proving a disappointment in the berry plantations of the state. This variety, a cross between Ruby and Coutant, was originated in 1904 by L. E. Wardell, Marlboro, New York, and introduced by him in 1916.

Plants tall, vigorous, upright, hardy, very productive, lack constitution, contract mosaic slowly but are severely injured; propagated by suckers; canes medium in number, stocky, green changing to purplish red, becoming yellowish brown at the close of the season,

dull, glabrous; prickles of average thickness and strength, few, short; leaflets 3–5, large, thick, dark green, rugose, crumpled, with closely serrate margins; petiole thick, somewhat pubescent. Flowers early; pedicels short, pubescent. Fruit early midseason, ripening a little earlier than Cuthbert but having a longer picking season, ships well; larger than Cuthbert or Marlboro, uniform, retains its size well to the close of the season, round-conic, medium to dark red, glossy, with but slight bloom, clings well to the torus yet picks easily; drupelets small, with strong coherence; flesh juicy, mild, firm, sweeter than Marlboro, highly flavored; very good in quality.

English Black. 1. *Mich. Sta. Bul.* **111**:24. 1894.

Described in 1869 as an old English hybrid of moderate vigor, with numerous purplish spines. Fruit medium in size, roundish, dark reddish purple; drupelets below medium, compact; flesh firm, briskly subacid.

English Giant. 1. Card *Bush-Fr.* 203. 1898.

Imported from Denmark by W. D. Barnes & Son, Middlehope, New York, and on trial at this Station in 1894. Plants below medium in vigor, moderately hardy; fruit large, light dull red, unattractive, moderately firm; quality fair.

English Globe. 1. Downing *Fr. Trees Am.* 966. 1869.

Plants vigorous; prickles moderately numerous, short, purplish; fruit large, obtuse-conical, dark red; flesh soft, juicy, sweet.

English Red Cane. 1. *Mich. Sta. Bul.* **111**:24. 1894.

Described by Crozier after Elliott as being much grown in 1865 by market gardeners. Plants tall, hardy, productive; canes bluish red with whitish gray bloom; fruit medium to large, round or slightly conic, dull red; drupelets large, firm, juicy, pleasant.

Erie. 1. *Ohio Hort. Soc. Rpt.* 14. 1885–86.

Gladstone. 2. Green *Cat.* 8. 1890. 3. *N. Y. Sta. Bul.* **63**:682. 1893.

Originated as a chance seedling, probably of Catawissa, with Charles Carpenter, Kelleys Island, Ohio, about 1875, who sent it out in a small way as Carpenter No. 2 and then as the Erie. In 1891 Green's Nursery Company, Rochester, New York, introduced it under the name of Gladstone as a hardy, vigorous and productive everbearing variety, a reputation which it failed to maintain. Plants vigorous, moderately productive, fairly hardy; fruit medium in size, round, soft, juicy, purplish red, sweet and of good quality; midseason, occasionally autumn-fruiting.

Erskine Park. 1. *Am. Pom. Soc. Rpt.* 161. 1920.

Perhaps this sort is now the most popular double-bearing red raspberry. It produces very fair crops in both summer and autumn which can be said of few other of the double-bearing raspberries. The plants seem to be very hardy, fairly healthy and moderately productive in both summer and autumn. The original plant was supposed to be a seedling or a sport of Cuthbert, but no trace of the Cuthbert blood can be seen in either plant or fruit. The fruits are not of the highest flavor, are inclined to crumble, and are quite variable in size. Still, they are better than those of Ranere, the only other double-bearing sort which competes with Erskine Park. This double-bearing berry was discovered by E. J.

Norman, near Lee, Massachusetts, about 1903, and is supposed to be either a seedling or a sport of Cuthbert. Although introduced in 1911, it was not widely disseminated until within the past six years.

Plants of medium height, very vigorous, upright, later becoming somewhat spreading, hardy, variable in yield, contract mosaic very slowly and but moderately injured; propagated by suckers; canes very numerous, stocky, dull green, glabrous, glaucous; prickles very short, of average thickness and strength, numerous, brownish purple; leaflets 5, large, thick, oval, dark green, rugose, with serrate margins; petiole short, thick, covered with but few, short, weak prickles, pubescent. Flowers very early; pedicels eglandular, pubescent; calyx smooth. Fruit early midseason; autumn-bearing; medium in size although quite variable, round-conic, dull, dark red, with thin bloom, adheres well to the torus which is roughish and pointed; drupelets large, often with poor coherence which causes the berries to crumble; flesh juicy, tender, not very firm, somewhat sprightly but not of highest flavor; quality fair to good.

Eureka. *Occidentalis* x *Strigosus.* **1.** Card *Bush-Fr.* 180. 1898.

Originated by Luther Burbank. Said to be a third generation seedling from Shaffer. The plants are more compact and productive with larger, brighter red fruits.

Everbearing. **1.** *Mag. Hort.* **3**:154. 1837. **2.** *Ibid.* **9**:191. 1843. **3.** *Mich. Sta. Bul.* **111**:24. 1894.

The three references given each describe a different everbearing variety, so it is probable that several sorts went under this name. In the *Magazine of Horticulture* for 1837 an everbearing raspberry is mentioned found near Lake Erie, in New York by the Shakers. It was described as a valuable variety similar to the White Antwerp in size and excellence. It propagated by tipping and was autumn-fruiting. In the *Magazine of Horticulture* for 1843 another everbearing type is described as being very similar to Red Antwerp, beginning to ripen about July 15th and bearing until frost. The plants were growing in the garden of R. Emmet, whose father procured them from Dr. Hosack of Hyde Park. Beyond that its origin could not be traced. In *Michigan Station Bulletin 111* another berry of the Antwerp type is mentioned as large, soft, like Herstine but not as good.

Everbearing Feldbrunnen. **1.** *Jour. Roy. Hort. Soc.* **37**:561. 1911–12.

On trial on the grounds of the Royal Horticultural Society at Wisley, England, in 1911. Said to be an excellent variety for autumn-fruiting. Canes strong, purplish green in color; few prickles; fruit borne in large clusters, large, round, rich crimson.

Excelsior. **1.** *Wis. Hort. Soc. Rpt.* 241. 1887.

Probably a chance seedling from a farm near Cassville, Wisconsin. In 1879 Dr. F. M. Cronin of that town brought plants of an everbearing raspberry to J. H. C. Sneclode, Cassville. They produced heavily and plants were sold at $1.00 each. Described as hardy and drouth resistant; fruit large, dark red, delicious; season from June till frost.

Fastolff. **1.** *Gard. Chron.* 849. 1842. **2.** *Mag. Hort.* **12**:299, fig. 20. 1846. **3.** *N. Y. Sta. Rpt.* 225. 1883. **4.** *Jour. Pom. & Hort. Sci.* **3**:24. 1922.

Filby. **5.** *Jour. Hort.* N. S. **3**:409. 1862.

This variety was discovered about 1820 by a Col. Lucas, Yarmouth, England, growing in a garden attached to an old castle, formerly the residence of Sir John Fastolff, whence the name. In 1842, Youell & Company of Norfolk commenced advertising it under the name of Fastolff, and it soon became widely disseminated both in England and in America. It was regarded as a probable seedling of Red Antwerp with which it ripens. The fruits are softer, more roundish than Red Antwerp, and the canes are stouter and more upright. In this country it was long popular as a home variety on account of the handsome appearance, large size and fine flavor of the fruit. It is still cultivated in Europe. The American Pomological Society placed Fastolff in its fruit catalog in 1852 where it still remains. Plants vigorous, erect, branching, very productive; canes tall, brittle, light yellowish brown, with numerous stiff, purplish prickles; fruit large, roundish conical, bright purplish red; drupelets large, soft, sweet, rich and highly flavored; season medium, long.

Fastolff Improved. 1. *Jour. Roy. Hort. Soc.* 202. 1898.

On trial in 1898 in the gardens of the Royal Horticultural Society in Chiswick, England, the plants having been secured from Messrs. George Bunyard & Company, Maidstone, England. Plants of moderate vigor and productiveness; fruit small, round, dark red and of fair flavor.

Fewthorn. 1. Hansen *Cat.* 1922.

A cross of the Minnetonka red raspberry and a wild red raspberry from the Black Hills near Rapid City, South Dakota, which originated with Prof. N. E. Hansen, Brookings,South Dakota. Introduced in 1922. Prickles very few; fruit of good size, $\frac{5}{8}$ to $\frac{3}{4}$ inch in diameter, dark red, firm, shrivels instead of rotting.

Fillbasket. 1. *Mag. Hort.* **22**:27. 1856. 2. *Jour. Pom. & Hort. Sci.* **3**:25. 1922.

Northumberland Fillbasket. 3. Downing *Fr. Trees Am.* 660. 1857.

Described in the *Magazine of Horticulture* in 1856 as a new English variety recently imported. It is still grown in Europe. Plants vigorous and productive, with numerous strong, purplish prickles; fruit large, blunt-conic; drupelets large, dark red, sweet, firm, slightly acid; good.

Flesh Colored. 1. Prince *Pom. Man.* **2**:169. 1832.

Imported by William Prince from the Mediterranean a short time previous to 1832. Plants of the Antwerp type; fruit of good size, of a high and peculiar flavor; season June till September.

Four Seasons Red. 1. *N. Y. Sta. Bul.* **278**:121. 1906.

Merveille des Quatre Saisons. 2. *Gard. Chron.* 743. 1846.

Marvel of the Four Seasons. 3. *Gard. Mon.* **2**:332. 1860.

Merveille Rouge. 4. *Guide Prat.* 21. 1895.

October Red. 5. *Jour. Hort.* **24**:105. 1860.

Found about 1847 in the nursery of MM. Simon-Louis Frères, in Metz, France; believed to have come from Fastolff. It was introduced into this country about 1857 and has been popular as an autumn-fruiting sort. It was placed in the fruit list of the American Pomological Society in 1862 as Merveille des Quatre Saisons, being changed to Four

Seasons Red in 1883, to October in 1897 and removed from the list in 1899. Plants moderately vigorous, hardy, not very productive; prickles numerous, short, purplish; fruit medium in size, blunt-conic, dark red, firm, of fair flavor and quality.

Four Seasons Yellow. 1. *Mich. Sta. Bul.* **111**:26. 1894.

Merveille des Quatre Saisons. 2. *Gard. Chron.* 743. 1856. 3. *Soc. Nat. Hort. France Pom.* 202. 1907.

October Yellow. 4. *Jour. Hort.* **24**:105. 1860.

Obtained by and introduced by the firm of MM. Simon-Louis Frères, Metz, France, in 1854. Supposed to be a seedling of Four Seasons Red which it resembles in all respects except color. Plants vigorous, upright, productive; fruit of medium size, round, firm, juicy, sweet; of good quality; early, autumn-fruiting.

Framboise Americaine. 1. Knoop *Fructologie* **2**:179. 1771.

Under this name Knoop describes four sorts, the first being later and darker red than the others and grows in mountainous localities in Germany, France, Belgium, and England. The second is similar to the first except that the fruit is yellowish white and sweeter than the first. It is less esteemed than the first because of its color. The third resembles the preceding but is without thorns, the fruit is larger and the flavor more acid. It grows principally in the mountains. The fourth resembles the preceding sorts, but the leaves are not divided, the flowers are larger, reddish and very fragrant; the fruits ripen rarely (Holland). This sort was brought from Canada.

Franconia. 1. *Mag. Hort.* **6**:310. 1840.

This variety was introduced into America some years previous to 1845 by S. G. Perkins of Boston who imported it from Vilmorin of Paris. Downing described it as the hardiest large raspberry, very productive and very excellent. For a number of years it sustained this reputation and was considered one of the best market varieties. The American Pomological Society placed Franconia in its fruit list in 1852 where it still remained in the last list in 1909. Plants vigorous, spreading, moderately hardy, productive; prickles few, stout, purplish; fruit large, blunt-conic, dark purplish red, firm, rich and sprightly; good; season a week later than Red Antwerp and long.

French. 1. *Horticulturist* **8**:188. 1853. 2. *Gard. Mon.* **2**:333. 1860.

Vice-President French. 3. *Mag. Hort.* **17**:215. 1851.

Another seedling from Dr. W. D. Brincklé of Philadelphia grown from seed of Fastolff crossed with Yellow Antwerp. It was raised previous to 1850 and named in honor of Hon. B. V. French of Massachusetts. It was recommended for trial by the American Pomological Society in 1854, placed in the fruit list in 1856 and removed in 1899. Plants vigorous, erect, very productive; prickles numerous, stout, purplish; fruit large, blunt-conic, dark red; drupelets large, firm, sweet, rich and of fine flavor; late.

French Everbearing. 1. *Rural N. Y.* **54**:794. 1895.

Said to have been introduced into California from France several years previous to 1895. Plant described as very vigorous and very productive; berries much larger than those of Cuthbert, bright red, firm, sweet and delicious; fruits also on current season's growth.

Fullerton. 1. *S. Dak. Sta. Bul.* **104**:288. 1907.

A wild red raspberry from near Fullerton, North Dakota, used by Prof. N. E. Hansen of the South Dakota Experiment Station as a parent in breeding hardy varieties for that section.

Fullmer Colorado. 1. *S. Dak. Sta. Bul.* **104**:287. 1907.

A red variety received at the South Dakota Experiment Station from a grower in Colorado. Not hardy at Brookings.

Fulton. 1. *Horticulturist* **8**:187. 1853.

Raised by Dr. W. D. Brincklé of Philadelphia about 1850 from seed of French. Plants vigorous and productive; reddish prickles; fruit large, round, crimson.

Ganargua. *Occidentalis* x *Strigosus.* 1. *Cult. & Count. Gent.* **36**:598. 1871.

A chance seedling discovered about 1870, along the Ganargua Creek near Farmington, New York, by S. B. Katkamier. Plants vigorous, hardy and productive; propagation from the tips; prickles numerous, weak; fruit is borne from shoots arising low on the canes, thus prolonging the season; fruit large, dark dull red, firm, lacking flavor; early.

Garnet. 1. Card *Bush-Fr.* 180. 1898.

A seedling of Philadelphia originated in 1885 by Dr. William Saunders, London, Ontario. Plants described as hardy, vigorous and productive; fruit of medium size, slightly conic, purplish red, soft; good; late.

General Negley. 1. *Mich. Sta. Bul.* **111**:27. 1894.

Described by Dr. J. A. Warder in 1870 as a seedling, probably of one of the large foreign varieties, originated by a Gen. Negley of Pittsburgh. Plants vigorous and productive; fruit large, roundish oblong, juicy, highly flavored; very good; early.

General Patterson. 1. *Horticulturist* **8**:187. 1853.

A seedling of Colonel Wilder raised by Dr. W. D. Brincklé of Philadelphia about 1850. Plants vigorous, very productive; prickles red; fruit large, round, crimson, does not part readily from the stem.

Genesee. 1. *N. Y. Sta. Bul.* **63**:682. 1893.

Sent out by Z. H. Harris, Rochester, New York, in 1888 for trial. Plants moderately vigorous, not hardy; foliage large, rugose; fruit large, red, soft; good, dropping as soon as ripe; early.

Gold. 1. *Mich. Sta. Bul.* **206**:58. 1903.

A yellow variety received at the Michigan Experiment Station about 1902 from M. H. Ridgeway, Wabash, Indiana. Plants vigorous; fruit good for a yellow berry.

Golden Alaska. 1. *Ann. Hort.* 194. 1892. 2. *Rural N. Y.* **52**:619. 1893.

Introduced in 1891 by the John A. Salzer Seed Company, La Crosse, Wisconsin. Said to have been found in a valley in Alaska. As grown on the trial grounds of the *Rural New-Yorker* it could not be distinguished from Caroline.

Golden Cluster. 1. *Va. Sta. Bul.* **147**:62. 1903.

On trial at the Virginia Experiment Station in 1903 where it was described as the best yellow-fruited variety. Plants vigorous, not very hardy, moderately productive; suckers

poorly; fruit large, elongated-conic, golden yellow, tender, juicy, mild, aromatic, pleasant; midseason, ripening period long

Golden Drop. 1. Bunyard *Cat.* 50. 1915–16.

Offered by Bunyard, Maidstone, England, as a Continental variety which he named provisionally, the original name having been lost. Canes strong; fruit round, deep golden, pleasantly flavored.

Golden Queen. 1. *Rural N. Y.* **44**:529. 1885. 2. *Ibid.* **45**:573, fig. 344. 1886.

Golden Queen is the only yellow raspberry worth planting by those who want raspberries of this color. It is supposed to be a sport of Cuthbert from which it differs only in the berries, which instead of being the Cuthbert red are light yellow, sometimes tinged with pink and are larger, more delicately flavored and softer in texture than those of the supposed parent. The canes are a little paler in color. The opening leaves of the young shoots lack the reddish tinge always noticeable in normal red raspberries, and the gland-like tips of both the younger and older leaves are greenish yellow; both of these characteristics are probably correlations with the yellow fruit. The remnants of the styles on the fruits are very distinct and contrast strongly against the orange-yellow surface because of their dark color. The foliage of Golden Queen seems to be especially tender and is easily injured by high winds, and as the leaves come to full size they are very rugose or much crumpled. Unfortunately the plants are very susceptible to the mosaic disease and rapidly succumb to it. The variety is of small use for commercial plantations, but because of the distinctive color and the high quality of the fruits should be in every private collection of berries. This variety originated in a plantation of Cuthberts on the grounds of Ezra Stokes, Berlin, Camden County, New Jersey, in 1882. The American Pomological Society added Golden Queen to its list of recommended fruits in 1887.

Goliath. 1. *Fest. Pom. Inst. Reut.* 129. 1910. 2. *Jour. Pom. & Hort. Sci.* **3**:25. 1922.

A European sort. Highly recommended for general culture in Germany, but said to be of little value in England because of unproductiveness and small fruit. Plants vigorous and productive; fruit large, bright red, firm, aromatic; early.

Goodwin.

An unintroduced seedling found growing in a strawberry bed about 1918 by F. C. Goodwin, Clark Mills, New York. It has all the characteristics of a red raspberry but propagates from the tips and does not sucker. Plants tall, very vigorous, upright-spreading, healthy; canes very stocky, reddish brown, glabrous, without bloom or glandular tips; prickles small, strong, numerous, purplish red; fruit large, roundish; drupelets large, of medium coherence, attractive medium red, glossy, juicy; flavor and aroma of the red raspberry, sprightly; good; a few days later than Columbian.

Gordon.

Received at this Station in 1913 from Sylvanus Gordon, Sergeantsville, New Jersey, who thought it a seedling of Shaffer. It produces suckers and can be grown by tipping. Plants medium in height, vigorous, upright, productive; suckers few; fruit variable in size, large to small, roundish, dark red, firm, crumbly, tart; poor.

GOLDEN QUEEN

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Grant. 1. *Gard. Mon.* **11**:123. 1869.

Mentioned in 1869 as a new variety from Auburn, New York. A cross between Franconia and Orange. Berry described as large, conical, very solid, red, of delicate flavor and earlier than Philadelphia.

Grape. 1. Card *Bush-Fr.* 205. 1898.

Said to be a cross between an unknown raspberry and Red Antwerp raised from seed by a Mr. Mason, Charlestown, Massachusetts. Fruit borne in bunches like grapes, whence the name.

Grapevine. 1. *Cult. & Count. Gent.* **43**:151. 1878.

Sent out in 1878 by William Holland, Plymouth, Indiana. An ornamental, the canes and foliage resembling the grape, from whence the name; fruit of no value.

Great American. 1. Childs *Cat.* 57. 1896. 2. *N. Y. Sta. Bul.* **278**:116. 1906.

Purchased from Luther Burbank in 1893 by John Lewis Childs and introduced by him about 1896. Plants not vigorous, dwarfish, not hardy, moderately productive; fruit large, red, soft, crumbly; fair in flavor and quality.

Guinea. 1. *Gard. Chron.* 3d Ser. **22**:75. 1897.

Yellow Superlative. 2. Bunyard *Cat.* 50. 1913–14.

A yellow-fruited seedling of Superlative raised by the originator of that variety, a Mr. Merryfield, Waldershare Gardens, Dover, England, shortly before 1897. It was introduced soon after by Messrs. G. Bunyard & Company, Maidstone, England. It is identical with Superlative except in fruit color; the foliage is greenish yellow; fruit very large, conical, deep yellow, very rich and sweet.

Hailsham. 1. Bunyard *Cat.* 50. 1915–16.

An autumn-fruiting sort raised by a Mr. Dann, Hailsham, England. Plants vigorous; leaves very large; fruit enormous, round, dark red,

Hampton. 1. *Rural N. Y.* **48**:817. 1899.

Mentioned as probably being a seedling of Hudson River Antwerp and a desirable kind. Plant more productive; fruit larger, later and of better quality than Marlboro.

Hansell. 1. *Rural N. Y.* **42**:606. 1883. 2. *N. Y. Sta. Bul.* **63**:683. 1893.

A chance seedling discovered on the farm of Hansell Brothers near Beverly, New Jersey, about 1875. It was introduced in 1882 by J. T. Lovett, Little Silver, New Jersey. It was one of the earliest red raspberries and for a time was considerably planted on that account. The quality was not high, the plants lacked vigor, and were said to transplant or propagate from root cuttings with difficulty. Hansell was placed in the fruit list of the American Pomological Society in 1883 and was not removed from the last list in 1909. Plants moderately vigorous, hardy, not very productive; suckering freely; canes and foliage dark reddish green; prickles numerous, small; fruit medium in size, roundish, bright red, firm, juicy, subacid; good; early.

Harris. 1. *N. Y. Sta. Bul.* **63**:683. 1893.

A chance seedling found growing apart from other raspberries near Rochester, New York. It was sent out for trial in 1889 by Z. H. Harris of that city. In 1894 Harris was

the most productive of the varieties on trial and kept longer than Cuthbert. Plants vigorous, dwarfish, upright, hardy, productive; fruit medium in size, firm, juicy, nearly sweet, of fine flavor and very good quality; earlier than Cuthbert.

Haymaker. *Occidentalis* x *Strigosus.* 1. *Ia. Hort. Soc. Rpt.* 249. 1901. 2. *N. Y. Sta. Bul.* **278**:124. 1906.

A chance seedling discovered about 1893 by A. O. Haymaker, Earlville, Ohio, who introduced it in 1900. For a while it was popular in the Middle West, but as grown at this Station the fruit was unattractive in appearance and inferior to Shaffer and Columbian in quality. The American Pomological Society placed Haymaker in its catalog in 1909. Plants tall, vigorous, upright-spreading, fairly hardy and productive, propagating from tips; canes stocky, with few slender prickles; fruit large, roundish to slightly conic; drupelets medium in size, number and coherence; dark purple, moderately juicy, firm, sprightly; good; very late.

Heebner. 1. *Ont. Fr. Gr. Assoc. Rpt.* 119. 1892.

Introduced about 1894 by W. W. Hilborn, Leamington, Ontario, who received it previous to 1886 from Muskoka County, where it had been grown from seed of the wild raspberry and had fruited for several years. Said to be of the *Rubus idaeus* type. Plants vigorous, not as hardy as Cuthbert, productive; fruit large, roundish conical, dark red, rather soft, juicy, subacid; good flavor and quality; late midseason.

Helston. 1. *Jour. Pom. & Hort. Sci.* **3**:25. 1922.

Received at the East Malling Research Station and said to be a common market variety in the Tamar Valley in England. Fruit of medium size, round and decidedly acid in flavor.

Henrietta. 1. *Cult. & Count. Gent.* **42**:618. 1877.

A chance seedling found growing in the garden of Mrs. E. Morley, Wethersfield, Connecticut, in 1870. Appearing promising, it was placed in the hands of Hale Brothers, South Glastonbury, Connecticut, who named and introduced it. When introduced it was thought by many to be identical with Belle de Fontenay. Plants short, stout, vigorous, hardy, moderately productive; prickles slender, reddish; fruit very large, roundish conic, irregular, bright red; drupelets very large, irregular; flesh firm, juicy, sprightly, rich.

Henry. 1. *Can. Exp. Farm Bul.* **56**:47. 1907.

Grown from seed previous to 1907 by William Saunders, Ottawa, Canada. Plants vigorous, hardy, productive; fruit above medium in size, roundish to slightly conical, bright to deep red, moderately firm, briskly subacid, juicy; good in quality; midseason.

Herbert. 1. *Can. Hort.* **26**:401. 1903. 2. *N. Y. Sta. Bul.* **278**:117. 1906. 3. *Am. Pom. Soc. Rpt.* 58. 1907. 4. *N. Y. Sta. Bul.* **414**:9, Pl. 1916.

Herbert is one of the best of the red raspberries, and on the grounds of this Station has long been the very best. It heads the list of its kind because of the great vigor, hardiness, and productiveness of the plants, and because it withstands attacks of mosaic rather better than most other red raspberries. Its most valuable characteristic is, however, its tremendous productivity, being nearly twice as productive as the old standard, Cuthbert. The berries are similar to those of Cuthbert, but are more sprightly in flavor, a little larger,

HERBERT

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rounder, but not quite so firm. This lack of firmness is the chief if not the only defect of the fruit. The berries, however, carry to nearby markets with ordinary care. In most seasons and on good raspberry soils the berries are remarkable for holding their size from the earliest to the latest picking. The plants are somewhat susceptible to spur-blight and to leaf-spot. Herbert is a chance seedling found in the garden of R. B. Whyte, Ottawa, Canada, in 1887. The variety may be a seedling of Clarke since Mr. Whyte raised many seedlings of this variety.

Plants tall, very vigorous, upright-spreading, very hardy, very productive, contracting mosaic very slowly, but then severely injured, and very susceptible to leaf-spot; propagated from suckers; canes numerous although somewhat variable, very stocky, green becoming brownish red, glabrous, glaucous, with eglandular tips; prickles small, short, strong, numerous, purplish red; leaflets 3–5, large, thick, attractive dark green, rugose, with serrate margins; petiole of medium length, thick, prickly, glabrous, slightly glaucous. Flowers early; pedicels prickly, glandular, pubescent; calyx prickly. Fruit midseason, continuing slightly beyond that of Cuthbert, holds size well throughout the entire season; large to very large, broadly ovate, broader and rounder than Cuthbert, dark but bright red, with thin bloom, adheres fairly well to the torus which is roughish and sharply pointed; drupelets medium to large, larger than those of Cuthbert, coherent; flesh juicy, rather soft under unfavorable conditions, pleasantly flavored, somewhat more sprightly than Cuthbert, aromatic; good in quality.

Herstine. *Occidentalis* x *Strigosus.* **1.** *Gard. Mon.* **12**:278, Pl. 289. 1870.

Originated with D. W. Herstine, Branchton, Pennsylvania. It was grown from seed of Allen supposed to have been pollinated by Philadelphia growing nearby. In 1870 a committee from the Pennsylvania Horticultural Society inspected numerous seedlings growing on the grounds of Mr. Herstine and named four of them, including the Herstine. It attracted considerable attention and for a time was considered a promising variety. The plant lacked hardiness, and was slightly deficient in pollen, causing imperfect berries. The fruits are too soft for shipping though of fine flavor and appearance. The American Pomological Society placed Herstine in its list of recommended varieties in 1873 and removed it in 1899. Plants vigorous, productive, not hardy; prickles medium in number, greenish; fruit large, blunt-conic, bright red; drupelets small, rather soft, juicy, sweet, rich.

Highland Hardy. **1.** *Cult. & Count. Gent.* **40**:278. 1875.

Originated as a chance seedling about 1870 on the farm of Nathaniel Palmatier, Highland, New York. For several years prior to 1880 it was grown considerably as an early sort for the New York market but was soon displaced by better varieties. South of New York its foliage was injured by the sun. Highland Hardy was placed in the fruit catalog of the American Pomological Society in 1883 and removed in 1895. Plants moderately vigorous, upright, productive; prickles few; fruit of medium size, roundish, light red, soft, sweet; good.

Hildreth. *Occidentalis* x *Strigosus.* **1.** *Am. Hort. Ann.* 102. 1867. **2.** Downing *Fr. Trees Am.* 968. 1869.

Introduced about 1867 by Isaac Hildreth, Big Stream Point, Yates County, New York,

as a native sort discovered near that place. It does not propagate readily from the tips and produces few suckers. Canes strong, with numerous stiff, purplish prickles; fruit medium in size, roundish oblate, dull dark red, with thick bloom, soft, juicy, sweet, subacid, with the flavor of Purple Cane.

Hillside Favorite. **1.** *Can. Hort.* **15**:126. 1892.

Mentioned as having originated in a garden in England several years previous to 1892. Plant described as very productive; fruit yellow with a pinkish tinge, of fine flavor; early.

Hiram. **1.** *U. S. D. A. Rpt.* 394. 1891. **2.** Childs *Cat.* 145. 1893.

Sent to the Pomological Division of the Department of Agriculture in 1891 by W. J. Bradt, North Hannibal, New York. Introduced in 1893 by John Lewis Childs, Floral Park, New York. Said to be of the Idaeus type. Plants vigorous, productive, not hardy in Ottawa; fruit very large, conic, bright red, soft, juicy, subacid; very good; midseason.

Hornet (I). **1.** *Gard. Mon.* **2**:332. 1860. **2.** *Am. Pom. Soc. Rpt.* 241. 1860. **3.** *Soc. Nat. Hort. France Pom.* 195, fig. 1907.

This variety originated with M. Souchet in Bagnolet, near Paris, France, previous to 1858. It was introduced into this country about 1858 by Aubry & Souchet, French nurserymen, Carpenters Landing, New Jersey. For a time it was a favorite sort, but it was soon displaced by better varieties. The variety was placed in the list of promising new varieties of the American Pomological Society in 1860, upon the society's catalog in 1869, from which it was removed in 1899. Plants vigorous, upright, productive; prickles few, short, purplish; fruit-stems very long; fruit very large, conical, dark red; drupelets compact, variable in size, moderately firm, juicy, subacid; good; season medium long.

Hornet (II). **1.** Bunyard *Cat.* 49. 1915–16. **2.** *Jour. Pom. & Hort. Sci.* **3**:26. 1922.

As grown in England the stock of this variety is said to be badly mixed with types mostly inferior to it. These rogues are attributed either to the growth of seedlings or to bud sporting from the roots. Plants vigorous, very productive; canes very numerous, moderately stout, nearly erect, moderately glaucous, glabrous; prickles few, small, soft; fruit small, round or slightly short-conic; drupelets large, sweet.

Hudson River Antwerp. **1.** *Horticulturist* **11**:15. 1856. **2.** *Gard. Mon.* **2**:332. 1860.

Antwerp. **3.** Fuller *Sm. Fr. Cult.* 156. 1867.

New Red Antwerp. **4.** *Mag. Hort.* **8**:256. 1842.

North River Antwerp. **5.** *Gen. Farmer* **17**:347. 1856.

This variety is supposed to have been brought to America about 1817 by a Mr. Briggs, Poughkeepsie, New York, who obtained it from the garden of the Duke of Bedford in England. Its culture spread through the sections of the Hudson Valley where it thrived, and for twenty-five years it was the leading market variety in the Valley, being most extensively planted along the west shore from Cornwall to Kingston. In 1878 it was estimated that 14,700 bushels were shipped from Marlboro. Its fruits began ripening early and continued over a long season; they shipped well, and the plants were very productive. The variety went out of cultivation because of tenderness to cold, inability to thrive in other localities, and the ravages of a disease called "Curl leaf." The plants were tall,

vigorous and very productive; canes a peculiar gray or mouse color and nearly spineless; fruit large, conical, dull red, with slight bloom, firm, not very juicy; flavor sweet, pleasant, but not of high quality; early.

Hudson River Red. 1. *Mich. Sta. Bul.* **111**:34. 1894.

A native red variety exhibited before the Cincinnati Horticultural Society in 1860 by F. W. Slack of Kentucky who was then growing it for the Cincinnati market.

Huntsman Giant. 1. *Rec. Hort.* 44. 1866.

A seedling of Franconia, raised by Prof. T. W. Huntsman, Flushing, New York, previous to 1866. It was named and brought to notice by A. S. Fuller. Fruit similar to Franconia but sweeter. Plants much taller, with a peculiar grayish white bark, continue long in bearing and slightly hardier than the parent.

Hybrid Crimson Mammoth. *Occidentalis* x *Idaeus*. 1. *Horticulturist* **28**:335. 1873.

A chance seedling discovered by Dr. E. R. Maxson, Adams, New York, in 1872. He considered it a cross between Red Antwerp and a black raspberry. The plants were large, hardy, productive and with few prickles.

Hyde. 1. *Am. Pom. Soc. Rpt.* 161. 1920.

Jumbo. 2. *Wis. Nur. Cat.* 1919.

Goliath. 3. *Ibid.* 1921.

Found growing wild in 1915 by Robert Norton, Black River Falls, Wisconsin. Introduced in 1918 by the Wisconsin Nurseries, Union Grove, Wisconsin. In 1919 the same variety was introduced by them as Jumbo, and in 1921 as Goliath. The fruit resembles Eaton and the variety does not appear of much value as grown here. Plants upright, dwarfish, vigorous, moderately productive; prickles few, weak; fruit variable in size, large to medium, irregular, broad, roundish conic; drupelets very large, medium in number, crumbly, dark red, juicy, tender, mildly subacid; good; midseason; said to be autumn-fruiting.

I. X. L. 1. *N. Y. Sta. Bul.* **91**:204. 1895.

A chance seedling of unknown parentage discovered in 1887 by Charles Schlessler, Naperville, Illinois. Plants vigorous, hardy; fruit of medium size; drupelets medium to large, crumbly, dull red, sweet; good; late.

Idaho. 1. Card *Bush-Fr.* 188. 1917.

Found growing in an old garden in Idaho. Fruit large, deep rich red, ripening from July to October, and said to be an abundant producer in the fall.

Imperial. 1. *Gard. Mon.* **2**:332. 1860.

Of French origin; introduced into this country about 1860 by Aubry & Souchet, Carpenters Landing, New Jersey. Plants were said to resemble Hornet (I) but the fruit is inferior; large, roundish, bright red, firm, of excellent flavor.

Imperial Red. 1. Downing *Fr. Trees Am.* 968. 1869.

At one time grown in New Jersey. It was placed in the catalog of the American Pomological Society in 1877 and removed in 1897. Fruit medium in size, roundish, dark red, moderately firm, juicy, pleasant; very good; midseason.

Imperial White. 1. *Mich. Sta. Bul.* 111:35. 1894.

Cataloged by Ellwanger & Barry in 1860 as a new, large, white variety.

Iowa. 1. *Wragg Nur. Cat.* 18. 1920.

Discovered near Storm Lake Iowa, previous to 1920. Named and introduced in 1920 by the Wragg Nursery Company, Des Moines, Iowa. Plant described as dwarfish, vigorous, hardy, very productive, without prickles; flowers and fruit found on the plant throughout a long season; fruit large, dark red, of excellent quality; early.

Jewell. 1. *Kan. Hort. Soc. Rpt.* 62. 1908–09.

Mentioned as being in the Lawrence markets. Propagates from tips. Fruit large, bright red, firm.

Johnson. 1. *Mich. Sta. Bul.* 111:35. 1894.

Received from Cincinnati in 1875 by E. Y. Teas of Indiana. Reported by him after a brief trial to be much like the Philadelphia.

Jouet. 1. *Gard. Mon.* 2:332. 1860. 2. Fuller *Sm. Fr. Cult.* 162. 1867.

Originated in France previous to 1860, and brought to this country about that time. Canes yellowish green; prickles numerous, whitish; fruit small, long-conic, bright lemon-yellow, with a whitish bloom; drupelets very small, firm, seedy; good.

Jumbo. 1. Lovett *Cat.* 1915.

Originated with James A. Hyde of New Jersey. Introduced by J. T. Lovett, Little Silver, New Jersey, in 1915, but withdrawn in 1917 as it proved tender to cold. Plants described as very vigorous and productive; fruit large, bright red, melting, rich.

Jumbo (of Canada). 1. *Am. Pom. Soc. Rpt.* 285. 1922.

Fruit large, conic, deep crimson, firm, mildly subacid, lacking in flavor; quality medium; midseason.

June. 1. *N. Y. Sta. Bul.* 364:190, Pl. 1913. 2. Hedrick *Cyc. Hardy Fr.* 278, fig. 241. 1922.

June has become a general favorite among growers of raspberries because of several remarkable assets. The plants are hardy, very vigorous, and the yield is not only heavy but is well distributed over a long season. The characteristic which forms the chief merit, however, is that it is about the earliest of all red raspberries, ripening its fruits at this Station in June, as does no other variety. The plants produce comparatively few suckers and these are widely separated so that the crop matures well. June is a cross between Loudon and Marlboro both of which it surpasses in most characters. The fruits resemble those of Loudon in color, but are a brighter, handsomer red; they are larger, and usually more spherical. The product ships well throughout the season and is good in quality although not of the best. The variety seems to do rather better on heavy soils than on light soils. June originated on the grounds of the New York Agricultural Experiment Station in 1897.

Plants tall, vigorous, upright-spreading, hardy, very productive, contract mosaic slowly and but moderately injured, attacked by cane-blight in but few localities, propagated

JUNE

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by suckers; canes rather few, making the increase of stock slow, stocky, greenish changing to reddish brown, heavily glaucous, with eglandular tips; prickles practically none or only toward the base of the suckers; leaflets usually 5, roundish ovate, the lobes often broadly and shallowly cut, dark green, rugose, with faintly dentate margins; petiole of medium length, thick, glabrous, glaucous. Flowers early; pedicels eglandular, glabrous; calyx smooth. Fruit very early, season long, ships well; large to very large, holds size unusually well until the close of the season, roundish to ovate-round, bright, handsome, medium to dark red, adheres well to the torus which is rough and whitish; drupelets large, coherent; cavity-scars inconspicuous; flesh juicy, firm but tender, mildly subacid; quality fair to good although not of the highest.

Kathrine. 1. Townsend *Cat.* 34. 1925.

A seedling of Ranere originated by E. W. Townsend in 1922 and introduced by his company, Salisbury, Maryland, in 1925. Described as very similar to Ranere but more productive.

Keighley Queen. 1. *Jour. Hort.* **25**:135. 1892.

A sample of this variety was sent to the editor of the *Journal of Horticulture* in August, 1892, for his opinion as to its value. It was reported as "very good."

Kenyon. *Strigosus* x *Occidentalis.* 1. *Mich. Sta. Bul.* **111**:36. 1894. 2. *N. Y. Sta. Bul.* **278**:117. 1906.

Kenyon was introduced by T. A. Kenyon, McGregor, Iowa, who found it growing in a row of black raspberries in 1885. It is supposed to be a seedling of Shaffer, but it does not propagate from the tips. Kenyon is considered of value in Iowa because of hardiness and productivity, but is inferior to other sorts as grown here. Plants vigorous, hardy, productive; fruit above medium in size, dark red, moderately firm, crumbly, separating from the torus with difficulty; fair in flavor and quality.

Kevitt Hybrid. 1. *Am. Pom. Soc. Rpt.* 285. 1921.

Introduced by William H. Hunt Company of New York City in 1921. Said to be a very strong grower, hardy and nearly free from seeds.

Keystone. 1. *Rural N. Y.* **15**:335. 1864.

A seedling of Hornet (I) raised by A. L. Felton of Philadelphia, about 1864. Plants not hardy; fruit large, bright red; flesh tender, highly flavored.

King. 1. *U. S. D. A. Pom. Rpt.* 265. 1892. 2. Hedrick *Cyc. Hardy Fr.* 278. 1922.
Thompson King. 3. *Mich. Sta. Bul.* **111**:314. 1894.
Early King. 4. *Ohio Sta. Bul.* **63**:109. 1895.

This midsummer sort, although hardy, is not as satisfactory in New York and the North as several other standard sorts, but in West Virginia and westward through the Central West it is counted as one of the best early red raspberries. In Minnesota it is especially valued. Wherever grown, it thrives best on clay soils. In New York the fruits are coarser and more crumbly than other standard sorts. It is fairly free from mosaic, but is by no means immune. King was grown from seed, possibly of Thompson, by T. Thomspon, Richmond, Virginia. The variety was introduced by the Cleveland Nursery

Company, Rio Vista, Virginia, in 1892. The American Pomological Society added King to its fruit catalog list in 1909.

Plants tall, vigorous, upright-spreading, hardy, productive, contract mosaic slowly; propagated by suckers; canes numerous, stocky, greenish becoming yellowish brown, glabrous, glaucous, with a few glands at the tips; prickles small, rather slender, weak, medium in number, light red; leaflets 3–5, somewhat small, dark green, more or less pubescent; petiole of average length and thickness, prickly, pubescent, glandular. Flowers late; pedicels medium in length and thickness, pubescent, glandular; calyx prickly. Fruit early midseason or earlier; medium to large, hemispherical, light but glossy red, with very thin bloom; styles conspicuous; torus slightly rough, roundish; drupelets small but rather coarse, cohering poorly, the berries often crumbling badly; flesh lacking somewhat in juiciness, variable in firmness, tender, with insipid flavor when poorly grown; quality rather poor, although variable.

King of the Market. 1. *Am. Pom. Soc. Rpt.* 285. 1921.

Originated by George W. Elliott, Makanda, Illinois, and introduced by Bradley Brothers of Makanda in 1915. Plants upright, stalky, productive; fruit attractive light crimson, firm, rich, delicious; double-cropper.

Kirriemuir Fillbasket. 1. *Jour. Pom. & Hort. Sci.* **3**:27. 1922.

Received at the East Malling Research Station in England with the report that it degenerates rapidly to a form of much less value. The degenerate form is known as Common Fillbasket; the fruit is smaller and the plants less productive. The true type is said to be the largest fruited and heaviest yielder of all varieties known in Perthshire. Canes dull reddish purple, heavily glaucous, glabrous; prickles few or almost absent, short, stout; fruit large, round, bright red.

Kirtland. 1. *Mag. Hort.* **26**:223. 1860. 2. *U. S. D. A. Rpt.* 136, Pl. 12. 1866. *Cincinnati Red.* 3. *Horticulturist* **24**:315. 1869.

Discovered previous to 1858 by Dr. J. A. Warder growing in the garden of Dr. J. P. Kirtland, Cleveland, Ohio. Dr. Kirtland believed he had obtained the plants elsewhere, but it was not recognized as any known variety. It was named and introduced by H. F. Lum, Sandusky, Ohio. From the variation in the different descriptions it is probable that more than one sort passed under this name. The variety is hardy but is injured by the sun in the South. Plants vigorous, upright, with few branches, hardy, productive; prickles few, weak, whitish; fruit medium to large, roundish, bright red; drupelets large, firm, not juicy, nor of high quality.

Knevett Giant. 1. Downing *Fr. Trees Am.* 518. 1845. 2. *Horticulturist* **4**:79, fig. 71. 1849–50.

Imported from England about 1843 by Marshall P. Wilder of Boston, who received the plants as a present from Messrs. Chandler & Company, Vauxhall, England, who knew nothing of the origin of the variety. It was considered an excellent sort, similar to Red Antwerp but more hardy. Plants upright, vigorous, hardy, productive; prickles few, short, purplish; fruit large, roundish conic, dark red, firm; good.

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Koch. 1. *N. Y. Sta. Bul.* **278**:117. 1906.

An unnamed seedling grown by C. H. Koch, Middlehope, New York, which was received for trial at this Station in 1896. Inferior to other varieties. Plants of moderate vigor and tender to cold; fruit medium in size, firm, crumbly; good.

Kreigh. 1. *Gard. Mon.* **22**:276. 1880.

A sample of this variety, a new seedling, was sent to the editor of *Gardener's Monthly* in 1880. Plants described as hardy, productive; fruit of fair size, firm and of excellent quality.

La France. 1. Armstrong *Cat.* 22, fig. 1922. 2. Lovett *Cat.* 8, fig. 1923.

On the grounds of this Station, La France is so similar in plant and fruit to Erskine Park that a separate description is not necessary. The plants grown here were secured from the introducer, as they have been from several other sources, and have been observed in several different localities, so that without question it can be said that in no essential characters does the La France differ from Erskine Park. There is hesitancy, however, in saying that the variety is Erskine Park renamed when there is a definite statement of another origin. La France is said to have originated as a seedling of a French berry. It was discovered by A. Alius, Stamford, Connecticut, about 1912. The variety was introduced in 1920 by John Scheepers, New York City.

Lady Anne. 1. *Mich. Sta. Bul.* **111**:37. 1894.

Mentioned as on trial at the experimental farm at Agassiz, British Columbia. Originated by Dr. William Saunders, London, Ontario.

Large Fruited Monthly. 1. *Gard. Chron.* 687. 1847. 2. Barry *Fr. Gard.* 344. 1851.

Rivers' New Monthly. 3. *Gard. Mon.* **2**:333. 1860.

Thomas Rivers imported this variety into England from the continent about 1847. It was brought to this country a few years later but never became of any importance. Plants moderately vigorous, upright, not hardy, fairly productive; suckers profusely; fruit large, roundish conic, red, soft, sweet; excellent; autumn-fruiting.

Large White. 1. *Mag. Hort.* **3**:23. 1837.

Grosse Blanche. 2. Bunyard-Thomas *Fr. Gard.* 165. 1904.

First mentioned in 1837 as a desirable variety. Bunyard describes it as a free grower, continuing a long time in bearing. The fruit is amber colored.

Latham. 1. *Am. Pom. Soc. Rpt.* 161. 1920.

Minnesota No. 4. 2. *Ia. Hort. Soc. Rpt.* 276. 1915.

Redpath. 3. *Am. Pom. Soc. Rpt.* 285. 1921.

Latham is among the most notable red raspberries recently introduced. The plants are conspicuous for their hardiness and healthiness, although they contract the dreaded mosaic disease rather rapidly, and are often much injured by powdery mildew. Because of the great vigor of the plant, however, the injury from mosaic is rather less than with the average red raspberry. The berries are very large, bright red, glossy, and hold up in size well. Unfortunately, they are rather inferior in flavor, crumble a little more than one likes, and there are often a considerable number of double berries. The large size, however,

and their attractive appearance more than make up for the faults. Latham is rapidly taking a high place among red raspberries because of its hardy and productive plants and its attractive fruits. This berry was originated at the Minnesota State Fruit Breeding Farm as a cross between King and Loudon and was introduced in 1912 as Minnesota Number 4. It was named Latham in honor of A. W. Latham, long Secretary of the Minnesota State Horticultural Society. Redpath, which was introduced by J. V. Bailey, St. Paul, Minnesota, in 1921, is identical with Latham.

Plants tall, vigorous, upright-spreading, very hardy, very productive, contract mosaic rapidly, moderately injured; severely injured by powdery mildew; propagated by suckers; canes numerous, very stocky, green changing to reddish brown, very glaucous, with eglandular tips; prickles small, slender, weak, few or none, brownish; leaflets 3–5, large, oval, dark green, dull, thick, rugose, with serrate margins; petiole medium in length and thickness, slightly prickly, glabrous, glaucous. Flowers late; pedicels prickly, glandular, pubescent; calyx prickly. Fruit late, withstands drouth well; large to very large, hemispherical, in some seasons inclined to grow double, light red, glossy, adheres to the torus which is rough and pointed; drupelets medium to large, somewhat coarse in appearance, with weak coherence making the berries crumble under unfavorable conditions; flesh juicy, firm, mildly subacid, variable in flavor; good in quality, sometimes below.

Leyerle. 1. Childs *Cat.* 32. 1920.

Originated with Jake Leyerle, Jackson County, Illinois. It was introduced as an everbearing red raspberry in 1920 by John Lewis Childs, Floral Park, New York. As grown at this Station it is not an everbearer and is far inferior to other varieties of its season. Plants tall, vigorous, upright, medium in productivity; suckers numerous; canes glaucous, with glandular tips; prickles numerous, very small; fruit of medium size, irregular, short, roundish; drupelets medium in size, coherence medium; dull unattractive red, medium juicy, soft, mild; fair; early midseason.

Lindley. 1. *Am. Hort. Ann.* 103. 1867.

Raised by Joseph B. Lindley, Newark, New Jersey, previous to 1867. Said to be a hybrid between Fastolff and a native variety. Plants strong, tall, upright, much branched, tender to cold; suckers too freely; prickles numerous, stout, greenish; fruit medium to large, slightly blunt-conic, red; drupelets medium to large, compact, soft, juicy, sweet; good.

Little Prolific. 1. *Rural N. Y.* **42**:638. 1883.

A chance seedling sent out in 1883 by Joseph Little, Granton, Ontario. It was never widely disseminated and soon went out of cultivation. Plants slender, branching, without prickles, hardy, very productive; fruit of medium size, slightly roundish conic, light purplish red, moderately firm, juicy, with acid flavor; early.

Lloyd George. 1. Bunyard *Cat.* 57. 1921. 2. *Jour. Pom. & Hort. Sci.* **3**:28. 1922.

Lloyd George is a chance seedling found growing in a wood in Dorsetshire, England, a few years ago. It was introduced by J. J. Kettle, Corfe Castle, Dorset, England, and is considered one of the most promising of recent introductions. It was introduced as an autumn-fruiting sort but is unreliable in that respect. The plants are vigorous, stout,

LATHAM

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upright; prickles very numerous, small, stout and very dark colored; leaves very flat; fruit very large and very long, oblong-conic, rounded at the end, sweet; good.

Longworth. 1. *Horticulturist* **8**:187. 1853.

A seedling of Col. Wilder raised by Dr. W. D. Brincklé of Philadelphia about 1847. Fruit large, round, deep crimson.

Lord Beaconsfield. 1. *Flor. & Pom.* 140. 1883.

A chance seedling found in the garden of A. Faulkner, Inkpen, near Hungerford, England, in 1873. It was exhibited before the Royal Horticultural Society in August, 1883, and received a first class certificate from that organization. Plant described as tall, stout, very productive; fruit large, slightly roundish conic, dark red; of fine quality; season long.

Lorne. 1. *Can. Exp. Farm Bul.* **56**:47. 1907.

Originated by Dr. William Saunders, Ottawa, Canada. It is not especially promising. A strong grower, moderately productive; fruit above medium in size, conic, dark red, firm, juicy, subacid, pleasing; good; midseason.

Lost Rubies. 1. *Cult. & Count. Gent.* **46**:742. 1881. 2. *N. Y. Sta. Bul.* **63**:683. 1893.

Found growing in a bed of Naomi by A. M. Purdy, Palmyra, New York; introduced by Charles A. Green, Rochester, New York, about 1881. Some have thought it to be identical with Naomi, but most reports indicate that it is different. The blossoms are deficient in pollen and require the presence of another variety to set good crops. As grown here the variety is neither hardy nor productive. The fruits are small, soft, and crumble badly; earlier than Cuthbert.

Louboro. 1. *N. Y. Sta. Bul.* **298**:56. 1908.

A seedling of Loudon x Marlboro raised at this Station from a cross made in 1897. The first fruit was borne in 1900, and the first plants were sent out in 1908. It has not proved of much value, owing to the light color and softness of the fruit and the dwarfish character of the plants. Plants medium to dwarfish in height, of medium vigor, upright, hardy, productive; suckers medium in number; canes glabrous; tips eglandular; prickles very few; fruit of medium size, broad, roundish; drupelets large, of medium coherence, light red, rather soft, sweet; good; midseason.

Loudon. 1. *Rural N. Y.* **52**:618. 1893. 2. *Mich. Sta. Bul.* **111**:288. 1894. 3. *N. Y. Sta. Bul.* **278**:117. 1906.

Long a standard sort, Loudon seems now to be declining in favor with commercial berry growers. It is difficult to see why it is losing in popularity, but probably because the plants are not very productive and are subject to crown-gall or "knotty roots." The quality, also, is not quite up to the mark and the berries very often run small or below size. The plants are very hardy, very vigorous, and for these reasons the variety is still largely grown toward the northern limits for this fruit. The product is liked by canners because the berries hold their color well. Loudon was originated by Frank W. Loudon about 1884, as a cross between Turner and Cuthbert. In 1897 the variety was added to the recommended fruit list of the American Pomological Society. Loudon was introduced by Charles A. Green, Rochester, New York.

Plants medium in height and vigor, upright, very hardy, variable in productiveness and health, contract mosaic slowly; propagated by suckers; canes numerous, stocky, greenish changing to rather bright red but brown towards the base, with eglandular tips; prickles medium in number, short, rather stout, reddish; leaflets 3–5, oval, dark green, thick, rugose, with dentate margins; petiole long, thick, prickly. Fruit midseason, harvest period long, holds up in size very well; medium to large, conic, bright red, clings well to the torus which releases the berries readily; drupelets large with a well-marked suture, cohering so that the berries do not crumble; flesh juicy, firm, tender, moderately sweet, pleasantly aromatic; good in quality although not equalling Cuthbert.

Louis Bonne. 1. *Can. Exp. Farm Bul.* **22**:16. 1895.

Imported from France by W. W. Dunlop of Montreal, in 1892. The foliage is of the blackberry type. The fruit is of no value as many of the drupelets fail to develop.

Magnum Bonum. 1. *Mag. Hort.* **22**:27. 1856.

Mentioned in the *Magazine of Horticulture* for 1856 as a new variety recently received from England. Plants of medium vigor, tender to cold; suckers profusely; fruit medium in size, roundish or slightly conic, deep yellow, soft, juicy, briskly subacid, pleasing; good; midseason.

Manitou. 1. *Ill. Hort. Soc. Rpt.* 213, 224. 1906.

E. A. Riehl, Godfrey, Illinois, procured this berry of A. B. Sibert, Rochester, Indiana, in 1905. On trial in Illinois in 1906, it was said to be very promising on clay soils. A free plant maker and very productive; fruit large, bright red, firm, well flavored.

Marlative. 1. *N. Y. Sta. Bul.* **298**:57. 1907.

A seedling of Marlboro x Superlative grown at this Station from a cross made in 1897. Plants were first sent out in 1908. It was introduced because of the unusual attractiveness in size and color of fruit, but lack of hardiness has caused its propagation to be discontinued. Plants stocky, semi-dwarf, upright-spreading, half-hardy, very productive; suckers numerous; canes glaucous; prickles few, small; fruit large, roundish ovate, dark red; drupelets large, coarse, crumbly, melting, sweet, pleasing; good; midseason.

Marlboro. 1. *Cult. & Count. Gent.* **46**:742. 1881. 2. *N. Y. Sta. Bul.* **278**:118. 1906. *Perfection.* 3. Bunyard *Cat.* 50. 1915–16.

This old sort, formerly grown in all the raspberry regions of North America, is now losing popularity. It still is, however, a standard early red raspberry in a few localities in New York and the East, along the shores of Lake Erie, and in Colorado. The variety is prized, where it succeeds, for hardiness and productiveness of plant; for its very large handsome fruits; and because the crop hangs on the bushes three or four days after maturity and is still marketable, in which respect the variety is unique. The defects which have caused its wane in popularity are that the plants are capricious as to soils, lack in vigor, and suffer much from even a slight drouth. A. J. Caywood, Marlboro, New York, originated this berry nearly fifty years ago. It is supposed to be a cross between one of Caywood's seedlings and Highland Hardy, and was introduced in 1884. In 1885 the American Pomological Society added Marlboro to its list of recommended fruits.

MARLBORO

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Plants of medium height and vigor, semi-dwarfish, upright, hardy, very productive, not very healthy, contract mosaic rapidly and are severely injured, susceptible to cane-blight; propagated by suckers; canes numerous, stocky, green becoming reddish brown or bright red especially towards the ends, with glandular tips; prickles very small, slender, weak, few, lightly tinged purple; leaflets 3–5, oval, sometimes lobed, dark green, dull, rugose, often crinkly, with serrate margins; petiole thick, prickly pubescent, eglandular. Flowers very early; pedicels eglandular, nearly glabrous; calyx smooth. Fruit early; large to medium, regular, round-conic, light to dark but bright red, releases readily from the torus which is blunt and pinkish white; drupelets irregular, adhering so well that the berries do not usually crumble, although there may be some crumbling in unfavorable seasons; flesh juicy, firm but tender, mild and rather poor flavor; quality not above good.

Marldon. 1. *N. Y. Sta. Bul.* **298**:56. 1908. 2. *Ibid.* **403**:219, Pl. 1915.

A seedling of Marlboro x Loudon grown from seed of a cross made at this Station in 1897. Plants were distributed for trial in 1908 and since then favorable reports as to its behavior have been received. Plants vigorous, upright, hardy, productive; suckers profusely; canes stockier than either parent, light brownish gray; prickles slender, weak, few; leaves thick, dark green, rugose; fruit large, conic, dark red; drupelets large, numerous, of medium coherence, firm, juicy, sprightly, pleasant; fair to good; midseason, a week earlier than Cuthbert.

Mary. 1. *Mich. Sta. Bul.* **111**:40. 1894.

A seedling of unknown parentage which originated with Dr. William Saunders, Ottawa, Canada. Plants of medium vigor, not hardy at Ottawa; fruit above medium in size, bright red, roundish or slightly conic, fairly firm, moderately juicy, subacid; good flavor and quality; midseason.

Mary Lewis. 1. *Mitting Nur. Circ.* 1920.

Said to be a cross between Superlative and Ranere originated by E. De Roo Mitting, Holland, Michigan, in 1914. It was introduced by the originator in 1920 as an everbearing variety. Described as an upright grower and heavy cropper with large, firm, pointed, crimson berries.

Mendocino. 1. *Mich. Sta. Bul.* **111**:40. 1894.

Said to have originated in Mendocino County, California. Large and very sweet. Used by Luther Burbank as a parent in breeding raspberries.

Meredith. 1. *Mich. Sta. Bul.* **55**:18. 1889.

Meredith Queen. 2. *Rural N. Y.* **43**:793, fig. 489. 1884. 3. *N. Y. Sta. Bul.* **63**:683. 1893.

Discovered growing wild in Meredith, New York, in 1880, by E. J. Brownell, Franklin, New York, who sent out plants in 1883 and offered them for sale in 1885. In 1893 several horticulturists believed it the only wild yellow *Strigosus* known to have been introduced into cultivation. The plants were vigorous, not hardy and suckered freely; canes purplish green, with red tips; fruit of medium size, roundish, reddish salmon, soft, juicy; good; late.

Merkel. *Occidentalis* x *Strigosus.* 1. *Am. Gard.* **12**:369. 1891.

Described as having large, hardy and exceedingly productive plants that do not sucker; fruit firm, with a currant flavor, darker than Cuthbert in color and with the size and shape of Gregg.

Michigan. 1. *Mich. Sta. Bul.* **111**:41. 1894.

Michigan Early. 2. *Mich. Hort. Soc. Rpt.* 268. 1885.

Introduced about 1883 by William Parry of New Jersey. This sort is supposed to have originated in Michigan. Plants hardy but lacking in vigor and productiveness; fruit small, conic, moderately firm, dark red, of poor quality.

Mildred. 1. *Am. Pom. Soc. Rpt.* 161. 1920.

Offered by the Tipton Nursery, Little Rock, Arkansas. Plants described as strong, stocky, prolific, enduring hot weather and drouths; fruit very large, bright red; high in quality.

Miller. 1. *U. S. D. A. Pom. Rpt.* 27. 1894. 2. *N. Y. Sta. Bul.* **278**:118. 1906.

Miller's Woodland. 3. Hills *Sm. Fruits* 71. 1886.

Miller Red. 4. *Kan. Hort. Soc. Rpt.* 91. 1896.

Miller Early. 5. *Mass. Sta. Bul.* **52**:10. 1898.

Originated with a Mr. Miller, near Wilmington, Delaware. This Mr. Miller also originated the Brandywine raspberry. It was Miller's intention to introduce this about 1885 as Miller's Woodland, but his death prevented and the stock fell into the hands of a grower in Sussex County who propagated it for his own use. It was not until ten years later that the variety began to be disseminated. In 1894 it was described as very promising in the Report of the Pomologist of the Department of Agriculture. It is probable that more than one sort went under this name as descriptions of the plant vary widely. The American Pomological Society placed Miller in its catalog in 1901 where it remained in 1909. Plants weak and semi-dwarf; suckers freely, usually hardy, moderately productive; prickles slender, weak, medium in number; fruit of medium size, broad-roundish, medium red, firm, not juicy, sometimes crumbly; fair flavor and quality; midseason.

Minnesota No. 1. 1. Card *Bush-Fr.* 191. 1917.

A seedling of King x Loudon introduced by the Minnesota Fruit Breeding Farm at Excelsior, Minnesota. It is similar to Latham but ripens about a week earlier.

Minnetonka. 1. *S. Dak. Sta. Bul.* **104**:289. 1907.

Originated about 1890 by F. J. Empenger, Maple Plain, Minnesota, who planted mixed seed of Cuthbert, Turner, and a wild raspberry. From the resulting seedlings Minnetonka was selected. At the South Dakota Station it was the hardiest of the cultivated varieties and was of some value for that part of the country. Plants of medium height and vigor, slightly drooping, hardy, productive and suckers freely; canes yellowish brown, glaucous; prickles medium in number, small, weak; fruit of medium size, broadly roundish; drupelets rather large, coarse, slightly crumbly, bright red, juicy, firm, sprightly; good; early

Mitchell. 1. *Jour. Pom. & Hort. Sci.* **3**:28. 1922.

This variety is grown considerably around Blairgowrie, Scotland, and by some is thought to be some other variety renamed. Plants erect, stout, very productive; canes

moderately numerous, glaucous, glabrous; prickles medium in number, short, stout, dark purplish, conspicuous; fruit roundish, or slightly oblong.

Montclair. 1. *Cult. & Count. Gent.* **43**:470. 1878. 2. *N. Y. Sta. Bul.* **63**:683. 1893.

A supposed seedling of Philadelphia which originated on the grounds of Messrs. E. & J. C. Williams, Montclair, New Jersey, about 1872; introduced in 1879. It was placed in the fruit catalog of the American Pomological Society in 1883 and removed in 1897. It has been described as a variety of *Rubus strigosus*, while it is listed as *R. neglectus* in the American Pomological Society catalog. Plants vigorous, productive, suckering freely; foliage much wrinkled; fruit above medium size, conic, dark red, firm, mildly subacid, pleasing in flavor; good; early midseason.

Moonbeam. *Strigosus* x *Occidentalis.* 1. *S. Dak. Sta. Cat.* 1922.

A cross of a wild red raspberry from Cavalier, North Dakota, with a cross of the wild red from the Black Hills of South Dakota and the purple raspberry, Shaffer. It originated with Prof. N. E. Hansen at the South Dakota Experiment Station, Brookings, South Dakota, and was introduced in 1922. Plants dwarfish, stocky, with few prickles; fruit large, late, firm.

Morrison. *Occidentalis* x *Strigosus.* 1. *N. Y. Sta. Bul.* **278**:124. 1906.

Originated with J. P. Morrison, Forestville, New York. Sent to this Station for trial in 1896. Inferior to Shaffer and Columbian. Plants vigorous, nearly hardy, moderately productive; fruit small, irregular in size; drupelets large, soft; flavor and quality fair.

Mote Everbearing. *Occidentalis* x *Strigosus.* 1. Downing *Fr. Trees. Am.* 970. 1869.

Originated by L. S. Mote, West Milton, Ohio, prior to 1867. Described as an everbearing variety similar to Catawissa. Canes vigorous, brownish, branching, with numerous slender, sharp prickles; fruit medium in size, roundish, obtuse, dark red, with bloom; drupelets large, firm, juicy, subacid.

Mowry.

An unintroduced seedling of Cuthbert found growing among plants of that variety in 1921 by T. B. Mowry, Mexico, New York. It was the most promising of five seedlings growing from a Cuthbert berry which had fallen to the ground. Sent to this Station for trial in 1924.

Mrs. Ingersoll. 1. *Horticulturist* **8**:187. 1853.

Originated with Dr. W. D. Brincklé of Philadelphia, about 1850. Plants white spined; fruit large, conical, yellow.

Mrs. Wilder. 1. *Horticulturist* **8**:187. 1853.

Originated by Dr. W. D. Brincklé of Philadelphia, about 1850. A seedling of Col. Wilder, resembling it in brilliancy and general appearance of fruits, but larger and deeper yellow in color; white spined.

Mrs. Wood. *Occidentalis* x *Strigosus.* 1. *Horticulturist* **22**:229. 1867.

Originated with Mrs. Reuben Wood, Rockport, Ohio, being new in 1867. It was supposed to be a cross of a black cap and a purple raspberry. Plants very strong, much

branched, productive; canes dark brownish red when mature; fruit medium in size, roundish conic, reddish purple, with bloom, firm, juicy, sprightly subacid; late.

Muriel. 1. *Mich. Sta. Bul.* **111**:43. 1894. 2. *Can. Exp. Farm Bul.* **56**:47. 1907.

A seedling of Biggar originated by Dr. William Saunders, Ottawa, Canada, previous to 1894. Described as vigorous and productive; fruit medium to above in size, roundish to slightly conic, bright red, moderately firm, juicy, subacid; quality above medium; early.

Muskberry. 1. Childs *Cat.* 135. 1897. 2. *Mich. Sta. Bul.* **206**:59. 1903.

Introduced by J. L. Childs in 1897 as belonging to the raspberry family. Plant described in 1903 in *Michigan Station Bulletin 206* as a rank grower, reaching a height of eight to ten feet, and spreading so rapidly from the roots as to become a nuisance in the garden; fruit of good size and attractive red in appearance, but the flavor is insipid and disagreeable. The bushes have a musky odor.

Muskingum. *Occidentalis* x *Strigosus.* 1. *Ann. Hort.* 104. 1889. 2. *N. Y Sta. Bul.* **63**:678. 1893.

Originated about 1880 in the orchard of Mrs. Simeon Ellis, Coshocton County, near the Muskingum River in Ohio. Named and introduced by James Madison, Chili, Ohio. It was similar to Shaffer, the plants being smaller and more compact, and the fruit smaller and firmer. Plants vigorous and fairly hardy; fruit medium to large, soft, moderately juicy, acid flavor; good.

Naomi. 1. *Horticulturist* **20**:322, fig. 1865. 2. *N. Y. Sta. Bul.* **63**:683. 1893.

Grown from seed about 1850 by Mrs. Reuben Wood, Rockport, Ohio. It was introduced about 1866 by Charles Carpenter, Kelleys Island, Ohio. Much confusion exists regarding this variety and many pomologists have insisted that Naomi was identical with Franconia, while Lost Rubies, Cuthbert, and Fastolff have also been given as synonyms. From various reports it is evident that the stock of Naomi was badly mixed when introduced or soon after. It is probable, too, that Naomi and Franconia are very similar. The descriptions of both varieties as grown here agree rather closely. Naomi is said to be hardier and the drupelets smaller than with Franconia. Plants vigorous, only moderately hardy, of medium productivity; suckers few; canes slender, with few laterals, reddish brown; prickles numerous, small; fruit large, roundish, slightly conical, bright attractive red; drupelets large, rather soft, mildly subacid, pleasant in flavor; good; late midseason.

Narragansett. 1. *Gard. Mon.* **14**:28. 1872.

A seedling of Orange, which originated in the garden of John F. Jolls, Providence, Rhode Island, first fruiting in 1868. Described as a large, vigorous, hardy plant, with large, conic, bright red, firm, well-flavored berries; autumn-fruiting.

Nature. 1. *N. Y. State Fr. Gr. Assoc. Rpt.* 179. 1910.

Mentioned in a discussion at a meeting of the New York State Fruit Growers' Association as an old-fashioned variety. Considered a firm and very good shipping berry.

Nelson. 1. *Can. Exp. Farm Bul.* **56**:48. 1907.

Originated by Dr. William Saunders, Ottawa, Canada. Plant described as vigorous, moderately productive and not hardy enough at Ottawa. Fruit above medium in size,

slightly conic, dark red, firm, moderately juicy, subacid; above medium quality; midseason.

New Rochelle. *Occidentalis* x *Strigosus.* 1. *Gard. Mon.* **19**:115. 1877.

A seedling of Catawissa, raised about 1875 by S. P. Carpenter, New Rochelle, New York. Plants vigorous, upright, firm and very productive, propagating from the tips; canes stocky, short pointed, much branched, with numerous short, stiff, greenish to light red prickles; fruit medium to large, blunt-conic, dark purplish red, with a slight bloom, firm, juicy, with a rich subacid flavor; season long.

Newman. 1. *Ont. Fr. Gr. Assoc. Rpt.* 54. 1919. 2. *N. Y. Sta. Bul.* **514**:10. 1924.

In a collection of about one hundred varieties of red raspberries on the grounds of this Station Newman has been for several years one of the best if not the best. The variety is remarkable for its large, handsome fruits which are borne in great profusion. It is one of the most productive red raspberries of any kind ever grown on the grounds of this Station. The quality of the product is not high, but it is good, and few would notice that it is not up to the best. The berries are firm and ship well. The plants are vigorous, very hardy, healthy, and, as has been said, exceedingly productive. The characteristic that commends Newman most highly, however, is that the plants are almost free from the mosaic disease that is everywhere destroying red raspberries in this State. The originator, C. P. Newman, Ville Lasalle, Quebec, planted in 1909 a mixture of seed of Herbert, King, Loudon, Cuthbert, and Eaton, all open to cross pollination, and from a large number of seedlings this variety was selected as the best. Mr. Newman gave the New York State Fruit Testing Association, Geneva, New York, permission to distribute his new berry.

Plants above medium in height, vigorous, upright-spreading, very hardy, very productive, contract mosaic very slowly, moderately injured; propagated by suckers; canes numerous, medium to stocky, green changing to reddish brown, thinly glaucous, with eglandular tips; prickles small, slender, weak, very few or none, reddish; leaflets usually 5, roundish obovate, dull, rugose, with serrate margins; petiole medium in length and thickness, slightly prickly, glabrous. Flowers early; pedicels very prickly, glandular, pubescent. Fruit midseason, ships well; large to very large, uniform, round-conic, glossy red, with heavy bloom, picks easily but adheres well to the torus which is roughish and creamy white; drupelets of medium size, with strong coherence; flesh moderately juicy or somewhat scant, very firm but tender, mildly subacid, not highly flavored; quality fair to good.

Newman No. 20.

Raised from open-pollinated seed of Eaton sown in the fall of 1907 by C. P. Newman, Ville Lasalle, Quebec. It was sent out for trial in 1915. As grown at this Station it is a very promising late variety, the fruit being of large size, firm and of fairly good quality. The color is rather light for a market berry. The plants are healthy, hardy, and productive on the Station grounds, but Mr. Newman reports that a considerable part of the crop sometimes dries up, thereby reducing production. Plants tall, vigorous, upright-spreading, productive; canes stocky, green tinged reddish brown, thinly glaucous; tips eglandular; prickles slender, numerous, dark purple; foliage dull medium green, roughened; flowers late; fruit uniformly large, regular, roundish conic; drupelets medium in number, large,

strongly coherent, light to medium red, rather dull, juicy, firm, mildly subacid; good; late.

Niagara. 1. *W. N. Y. Hort. Soc. Rpt.* 23. 1882. 2. *Can. Exp. Farm Bul.* 22:17. 1895.

Said to be a cross between Clarke and Philadelphia, raised and introduced by A. M. Smith, St. Catherines, Ontario, prior to 1882. Plants moderately vigorous, hardy, very productive; fruit medium to large, roundish ovate, red, firm, pleasant acid flavor; good; midseason.

North Ward. 1. *Jour. Pom. & Hort. Sci.* 3:29. 1922.

Received at the East Malling Research Station in England from a Cornish grower with a note that the name was thought to be local and to have been applied to a variety grown elsewhere under another name. Canes stout, glabrous, not very erect; prickles long, stout, numerous; fruits large and irregularly conic. The variety promises to be productive.

Norwalk. 1. *Cult. & Count. Gent.* 43:151. 1878.

Introduced by Mallory & Downs, South Norwalk, Connecticut, in 1879, after having been grown by them for several years. Fruit similar to that of the Red Antwerp but less downy.

Norwich Wonder. 1. *Jour. Hort.* 29:199. 1894. 2. Bunyard-Thomas *Fr. Gard.* 165. 1904.

Mentioned in the *Journal of Horticulture* in 1894 as doing well on alluvial soils, and with the statement that "Norwich Wonder is one of the oldest raspberries in cultivation, as it had been grown in Kent for over sixty years, and it is one of the hardiest, most enduring and heavy cropping." Plants rather weak, productive; canes usually few, stout, densely pubescent, green, with purplish tinge; prickles numerous, stout; fruit conical or roundish oval, dark red; drupelets large; flavor sweet; very good; early.

Norwood. *Occidentalis* x *Strigosus.* 1. *Horticulturist* 29:250. 1874.

Norwood Prolific. 2. *Gard. Mon.* 17:333. 1875.

Introduced about 1874 by Hovey & Company, Cambridge, Massachusetts, who described it as a hybrid between the red raspberry and the black cap, having the large berry of the former and the strong growth and prolific bearing of the latter. Plants very vigorous, hardy, and very productive. Canes strong, with numerous branches, do not sucker but propagate from the tips; fruit large, purplish red, with rich, brisk flavor.

Nottingham Scarlet. 1. Downing *Fr. Trees Am.* 518. 1847.

An English variety introduced prior to 1847 by Marshall P. Wilder of Boston. It was considered by him the richest flavored of the older varieties. Fruit medium in size, blunt-conic, red.

November Abundance. *Idaeus* x (*Occidentalis* x *Strigosus*). 1. *Garden* 63:33. 1903. 2. Bunyard *Cat.* 50. 1915–16.

Introduced about 1902 by James Veitch & Sons, Chelsea, England; received an award of merit from the Royal Horticultural Society in that year. Said to be a cross between

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the Superlative and the Catawissa, a purple raspberry. Plants vigorous and very productive; fruit very large, dark red; late; autumn-fruiting.

October Giant. **1.** Burbank *Cat.* 31. 1893.

A seedling of Eureka originated by Luther Burbank, Santa Rosa, California. Described as bearing fruits in October, of unusual size, measuring nearly four inches in circumference, soft, bright red.

Ohta. **1.** *S. Dak. Sta. Bul.* **159**:184. 1915. **2.** *U. S. D. A. Farmers' Bul.* **887**:40. 1917.

Flaming Giant. **3.** Stark Bros. *Cat.* 64. 1921.

A cross of a wild red raspberry from Cavalier County, North Dakota, and Minnetonka, which was originated by Prof. N. E. Hansen, of South Dakota Experiment Station in 1906. It was named Ohta, the Sioux Indian word for "much" or "many," and introduced by the Station in 1912. Where hardiness is essential, Ohta is a promising variety. The crops are fairly heavy. It is inferior to standard varieties at this Station in size and flavor, the latter being too tart for a table berry. Plants tall, vigorous, upright, hardy and productive; suckers very numerous; canes slender, green tinged reddish brown, heavily glaucous, with glandular tips; prickles small, slender, very numerous; leaflets medium in size, oval, dark green, roughened; petiole long, slender, prickly, pubescent, glabrous, glandular, slightly glaucous; flowers early, white; fruit variable in size, medium to above, roundish; drupelets medium in number and coherence, light red, vary from soft to firm, tart; poor; early.

Olathe. **1.** *N. Y. Sta. Bul.* **63**:684. 1893.

Stayman No. 5. **2.** *Mass. Sta. Bul.* **10**:11. 1890.

A seedling of Reliance originated by J. Stayman, Leavenworth, Kansas, from seed planted by him in 1884. It was sent to experiment stations for trial about 1890 and in 1894 was named Olathe by the originator. As grown here the fruit is inclined to crumble. Plants upright, vigorous, hardy and very productive; canes slender, tinged with red; fruit large, attractive dark red, firm; drupelets medium in size, inclined to crumble, firm, juicy; good; late.

Ontario. **1.** *Am. Pom. Soc. Rpt.* 161. 1920. **2.** Hedrick *Cyc. Hardy Fr.* 279. 1922.

Ontario has the record of having surpassed every other variety ever grown on the Station grounds in quantity of fruit. It seems to make a place for itself in commercial plantations to precede Cuthbert and to follow Marlboro, Perfection, and June. The berries are large, handsome, well flavored, keep and ship well. The fruit is too dark when fully ripe, but remains firm. Perhaps it is not too much to say that it is one of the very best shippers, and, because of the firmness, it makes a good sort for commercial canning. Ontario was originated as a second generation seedling of Superlative and Loudon in 1909 by the New York Agricultural Experiment Station, Geneva, New York. The variety fruited first in 1911 and was introduced by the New York State Fruit Testing Association of Geneva in 1919.

Plants tall, very vigorous, upright-spreading, hardy, very productive, surpassing any other variety yet fruited at this Station, contract mosaic slowly and are but moderately

injured; suckers numerous, quickly making a matted row, stocky, green changing to reddish brown, glaucous, with eglandular tips, devoid of prickles; leaflets usually 5, about medium in size, roundish ovate, dark green, slightly glossy, very rugose, with dentate margins; petiole long, very thick, glabrous, glaucous. Flowers early; pedicels eglandular, with few prickles, glabrous, glaucous; calyx smooth. Fruit early, or early midseason, ships well; large to very large, uniform and retaining size throughout the season, broad-conic, medium red becoming darker when fully ripe but remaining firm, releasing berries readily from the torus which is roughish, slightly pointed or blunt, whitish; drupelets large, adhering so that there is no crumbling; flesh juicy, firm, mildly subacid, pleasantly aromatic; quality good to very good.

Orange. 1. *Horticulturist* **1**:178. 1846–47.

Brincklé's Orange. 2. Hoffy *N. Am. Pom.* Pl. 1860. 3. *N. Y. Sta. Bul.* **278**:121. 1906.

Orange was raised from seed of Dyack Seedling in 1845 by Dr. W. D. Brincklé of Philadelphia. For a number of years it was the standard of excellence among raspberries and was widely grown as a family berry. It was of the type of the Antwerps, but more vigorous and adapted to a wider range of country. The berry was of a beautiful orange color and possessed a very rich and delicious flavor. It thrived only on cool, moist soils where the sun was not too hot, but required winter protection. The softness of the fruit prevented its becoming a general market berry. In 1854 the American Pomological Society placed it in its list of varieties promising well and in 1856 it was placed in the fruit catalog of the Society where it still remains. Dr. Brincklé stated that Orange generally reproduced itself from seed. Seedlings occasionally appeared with circular leaves, and although having perfect flowers, they never bore fruit. Plants not vigorous, dwarfish, slender, tender to cold, very productive in favorable locations; canes light gray; prickles white; fruit large, ovate; drupelets above medium in size, very soft, juicy; color a beautiful orange-pink; flavor and quality of the best; early.

Orange d'Automne. 1. Fish *Hardy-Fr. Bk.* 276. 1882.

Canes sturdy and productive; fruit large, bright orange, firm, juicy, richly flavored.

Oronoco. 1. *Am. Pom. Soc. Rpt.* 161. 1920.

Introduced by the Morris & Snow Seed Company, Los Angeles, California, in 1914. Said to have come from wild plants brought from the Oronoco River region in South America. Described as evergreen and a strong grower, bearing clusters of large yellow fruit of good quality.

Osceola. 1. *Mich. Sta. Bul.* **111**:47. 1894.

Originated in Osceola County, Iowa, and reported in 1881 as a soft and very hardy variety.

Owasco. 1. *N. Y. Sta. Bul.* **497**:16, Pl. 1923.

The fruits of Owasco are the largest and handsomest red raspberries grown on the Station grounds. The berries are quite as good as they look, and if product alone were to be considered, one could say that Owasco is the nearest approach to perfection of any red raspberry. Unfortunately it fails somewhat in its plant characters. Thus, it is a poor

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plant maker, and, therefore, hard to propagate; again, it is variable in habit of growth; lastly, it is not as hardy as some of the standard sorts, although it is sufficiently hardy for the great berry regions of New York. Owasco is distinguished among other varieties when not in fruit by its large, coarse leaves which are very light in color. The berries are easily distinguished by their large size and conic shape. As the fruits ship and keep well, it is a most promising new commercial red raspberry. Owasco is a cross between June and Cuthbert which originated at the New York Agricultural Experiment Station, Geneva, New York, in 1911. It was introduced by the New York State Fruit Testing Association, Geneva, in 1922.

Plants variable in height and vigor, upright-spreading, fairly hardy, productive, contract mosaic slowly but are severely injured; susceptible to wilt; propagated by suckers; canes medium or below in number making a poor plant-maker, green changing to reddish brown, heavily glaucous, with eglandular tips; prickles very short, slender, weak, medium in number, pale red only at their tips; leaflets usually 5, of large size, oval to obovate, coarsely rugose, light green, with serrate margins; petiole long, slightly prickly, nearly glabrous, glaucous. Flowers midseason; pedicels eglandular, glabrous, prickly, glaucous; calyx prickly. Fruit midseason, ships and keeps well, picks easily; very large, the largest and handsomest of all varieties on the Station grounds, broadly conic, the surface covered with fine pubescence and with adherent styles, medium red, somewhat glossy, adheres well until over-ripe when it detaches almost too readily; torus sharply pointed, roughish and creamy-white; drupelets medium in size, coherent; cavity-scars inconspicuous; flesh juicy, firm except when over-ripe, tender, sprightly becoming sweet, highly flavored, aromatic; very good in quality.

Panhandle. 1. *Am. Pom. Soc. Rpt.* 207. 1922.

Introduced by the Clarendon Nursery Company, Clarendon, Texas; said to have been originated in their trial grounds.

Papier. 1. *Gard. Mon.* 2:333. 1860.

An old French variety, introduced about 1820 at Bagnolet near Paris, a center of raspberry growing for the Paris market. It was introduced into this country about 1860 by Aubry & Souchet, Carpenters Landing, New Jersey. Fruit described as of good size and excellent flavor but soft and having short fruit-stalks.

Paradise Berry. 1. *Jour. Pom. & Hort. Sci.* 3:30. 1922.

Received at the East Malling Research Station in England from Stavanger, Norway, with the report that it was larger than Royal. Canes densely pubescent; prickles numerous, long, stout, inconspicuous; fruit large and round.

Park Lane. 1. *Jour. Pom.* 1:243. 1920. 2. *Jour. Pom. & Hort. Sci.* 3:30, Pl. 1922.

Raised by George Pyne, Topsham, England, and introduced in 1912. It is considered one of the best-flavored varieties grown in England and recently received an award at trials of the Royal Horticultural Society. The softness of the fruit and frequent light crops make it a berry for the amateur only. Canes stout and vigorous; prickles very numerous, soft, slender; leaves large, broad; fruit large, roundish, soft, tender, very sweet and well flavored.

Parnell. 1. *Ohio Hort. Soc. Rpt.* 57. 1868. 2. *N. Y. Sta. Rpt.* 226. 1883.

Said to have been raised from seed of Four Seasons Red by a Mr. Parnell, Cincinnati, Ohio, about 1867. From conflicting reports as to its behavior it is probable that the stock was mixed. Plants vigorous, hardy, and productive; foliage subject to sunburn; fruit medium in size, roundish conic, bright red, firm; good.

Parry No. 1. 1. *Horticulturist* **24**:273. 1869. 2. *N. Y. Sta. Bul.* **63**:684. 1893.

Raised from seed by William Parry, Parry, New Jersey, and sent out by him for trial about 1867. It was never named, as further trials proved it inferior to standard varieties. Plants strong, vigorous, and upright; fruit of medium size, firm, juicy, mildly subacid; good; late.

Parry No. 2. 1. *Horticulturist* **24**:273. 1869. 2. *N. Y. Sta. Bul.* 63:684. 1893.

Of the same origin as the preceding; not named. Plants vigorous and upright; fruit large, firm, moderately juicy, mildly subacid; very good; late.

Pearl. 1. Fuller *Sm. Fr. Cult.* 154. 1867. 2. *Gard. Mon.* **21**:175. 1879.

A berry of unknown origin which was cultivated around Philadelphia about 1870. It was very similar to Brandywine and some growers considered them identical. William Parry states that Pearl differs from Brandywine in that the foliage starts growth a week later, the plant is less vigorous, and the fruit of Pearl is smaller. Plants short, stocky, seldom over three feet high; suckers very numerous; prickles numerous, long, slender, tinged purplish; fruit of medium size, round, light bright red, moderately firm, juicy, sweet with an agreeable flavor.

Peerless. 1. *Will Nur. Cat.* 75. 1919.

Originated about 1914 with John W. Millet, Bismarck, North Dakota, from a lot of mixed seedlings; introduced in 1919 as the Peerless Climbing by Oscar H. Will & Company, Bismarck, North Dakota. As grown here Peerless is not equal to standard varieties. Plants tall, vigorous, upright-spreading, hardy, productive; suckers very numerous; canes stocky, green with an occasional reddish tinge, slightly glaucous; prickles few, slender, weak, reddish; fruit medium in size, somewhat variable, roundish conic; drupelets medium in size and number, strongly coherent, dark red, slightly glossy, medium juicy, firm, mildly subacid; good; late midseason.

Pennsylvanian. 1. Prince *Pom. Man.* **2**:167. 1832.

Obtained by William Prince from a London nursery under the name *Rubus pennsylvanicus;* he later found it identical with plants received from the forests of Maine. Canes of young shoots covered with red hairs extending from base to tip, very productive, frequently producing an autumn crop; fruit dark red, oval and of indifferent flavor.

Penwill Champion. 1. *Garden* **66**:403, fig. 1904. 2. *Jour. Pom. & Hort. Sci.* **3**:31. 1922.

A chance seedling found in a garden by a Mr. Penwill, Totnes, England, a few years prior to 1904. The variety received an award of merit from the Royal Horticultural Society in 1904. It is grown occasionally in the southwest of England. Leaves with characteristic reddish tinge around the margin in late summer; prickles dark colored and conspicuous; fruit large, bluntly round, firm, dark red, very sweet; season long; autumn-fruiting.

Percy. *Occidentalis* x *Strigosus.* **1.** *Can. Exp. Farms Rpt.* 109. 1900. **2.** *N. Y. Sta. Bul.* **278**:124. 1906.

A seedling of Gregg by Cuthbert which originated with Dr. William Saunders, Ottawa, Canada. As grown at their station it is inferior for commercial purposes. Plants vigorous, fairly hardy, productive; fruit above medium in size, darker and softer than Shaffer and inclined to crumble; not equal to Shaffer in flavor and quality; midseason.

Perfection. **1.** *U. S. D. A. Pom. Rpt.* 394. 1891.

There are two Perfection red raspberries; one comes from New York and is now grown little or not at all, because of its susceptibility to the mosaic disease; the other comes from Wisconsin and is the subject of this discussion. Perfection was once widely grown because of productiveness and large, handsome fruits, but is being discarded because it is very susceptible to the mosaic disease and because the fruits are too soft and too much inclined to crumble to make a good commercial red raspberry. Perfection was originated by F. W. Loudon, Janesville, Wisconsin, about thirty years ago as a cross between Cuthbert and Turner.

Plants above medium in height, vigorous, upright, very hardy, lack in health, apparently contracting mosaic rapidly, moderately injured, susceptible to cane-blight; propagated by suckers; prickles numerous, stocky, green changing to dull light red or greenish brown, glabrous, heavily glaucous; prickles slender, weak, few; leaflets 3–5, rather small, long-oval, thick, glabrous, rugose, with serrate margins; petiole long, thick, with few prickles, slightly pubescent. Flowers small, in prickly clusters; pedicels short, pubescent, glandular. Fruit early midseason or earlier, injured by drouth; large to medium, regular, hemispherical, dull, dark red, clinging a little too tenaciously to the torus which is large and roughish; drupelets large, irregular, cohering weakly so that the berries sometimes crumble; flesh a little soft, tender, juicy, not very aromatic, sprightly; quality fair to good.

Perfection (of New York). **1.** *N. J. Hort. Soc. Rpt.* 128. 1913.

This variety is a chance seedling found in 1900 by A. H. Grefe, Marlboro, New York, who named and introduced it in 1910. It is well liked in eastern New York because of the vigor, productiveness, and hardiness of plants, but is being discarded because of susceptibility to the mosaic disease. Fruit large, bright red, rather soft, inclined to crumble; good.

Perpetuelle de Billiard. **1.** *Guide Prat.* 21. 1895. **2.** *N. Y. Sta. Bul.* **278**:121. 1906.

Raised about 1868 by Charles Billiard, a nurseryman at Fontenay-aux-Roses, France. As grown at this Station from plants imported by the United States Department of Agriculture it is not equal to other sorts for this climate. Plants moderately vigorous, hardy and moderately productive; fruit large, soft, attractive red; good flavor and quality; autumn-fruiting according to European descriptions.

Perry Golden. **1.** *Mich. Sta. Bul.* **142**:159. 1897.

On trial at the Michigan Station in 1897 and said to be similar to Golden Queen.

Philadelphia. *Strigosus* x *Occidentalis.* **1.** *Mag. Hort.* **29**:460. 1863. **2.** Fuller *Sm. Fr. Cult.* 147, fig. 1867. **3.** *N. Y. Sta. Bul.* **63**:684. 1893.

The origin of this variety is in doubt, but it is supposed to have been found in the wild, near Philadelphia, about 1840. It was first grown extensively on the light soils of southern

New Jersey and did not attract much attention until about 1866, when its culture began to spread. Until about 1880 it was a leading market variety. Its widespread popularity was due to hardiness, heavy bearing, and adaptation to a wide range of soils and climates. The berries lacked firmness, were inclined to crumble, and the quality was not high. Philadelphia was placed in the catalog of the American Pomological Society in 1869 and remained in the last catalog of 1909. Plants tall, vigorous, branching, hardy, very productive; suckers few; canes stocky, purplish, branching; prickles very few, very small; leaflets large, dark green, thick, tough, with a peculiar wavy appearance on the upper side; fruit above medium in size, roundish, dark red, with very little bloom; drupelets large, cohering well, rather soft, lacking juiciness, mildly subacid; season long.

Phœnix. 1. Lovett *Cat.* 13. 1896. 2. *N. Y. Sta. Bul.* **278**:118. 1907.

Introduced in 1896 by the J. T. Lovett Company, Little Silver, New Jersey. Said to be a seedling given to the Lovett Company by a bankrupt nurseryman a few years previously. It is of the type of Miller and as grown at this Station is inferior in size and quality to standard sorts. Plants vigorous, usually hardy, moderately productive; canes slender; fruit variable in size ranging from below medium to large, dark red, firm; drupelets medium in size, inclined to crumble; fair in flavor and quality; midseason.

Pilate. 1. *Gard. Mon.* **2**:333. 1860. 2. Fuller *Sm. Fr. Cult.* 163. 1867.

An old French variety of unknown origin which was introduced into this country about 1860 by Aubry & Souchet, Carpenters Landing, New Jersey. Described by Fuller as inferior to sorts produced in this country. Plants moderately vigorous, productive; prickles numerous, purplish red; fruit large, long-conic, dark red; drupelets small, compact, firm, juicy, subacid; good.

Pomona. *Strigosus* x *Idaeus.* 1. *N. Y. Sta. Bul.* **63**:685. 1893. 2. *Ibid.* **278**:119. 1906.

Introduced about 1887 by William Parry, Parry, New Jersey, who thought it a seedling of Brandywine. As grown at this Station it was considered valuable for home use. Plants stocky, moderately vigorous, upright, hardy and productive; fruit large, attractive light red, moderately firm, juicy, nearly sweet; good; season long.

Pride of Geneva. 1. *N. Y. Sta. Bul.* **278**:121. 1906.

An old English variety said to have been brought to this country many years ago by a Mr. Payne. It was sent out by Steele Brothers, Geneva, New York. Inferior to standard sorts. Plants of medium vigor, hardy, moderately productive; fruit medium in size; drupelets coarse, moderately firm, slightly acid; fair.

Pride of Kent. 1. *Ann. Hort.* 194. 1891. 2. *N. Y. Sta. Bul.* **63**:685. 1893.

Originated a few years prior to 1887 by a Mr. Fallstaff, Kent, England. Imported into this country in 1887 by Henry King, Jefferson County, Colorado, and was introduced in 1892 by R. S. Edwards, Highlands, Colorado. Plants vigorous, not very hardy, moderately productive; canes large, stocky; fruit large, soft, red; good.

Pride of the Hudson. 1. *Cult. & Count. Gent.* **43**:151. 1878.

A chance seedling discovered in the garden of T. H. Roe, Newburgh, New York, about 1872 by E. P. Roe of Cornwall, who introduced it. The plant was easily injured by the

heat of summer and the cold of winter and Mr. Roe soon discontinued its propagation. Plants strong, vigorous, tender to cold, productive; prickles few, short, purplish; leaflets large; fruit large, roundish conic; drupelets large, red, rather soft, juicy, sweet, rich and of fine flavor.

Prince Globose. 1. Downing *Fr. Trees Am.* 971. 1869.

Raised by William Prince, Flushing, New York. Plants strong, upright, branching; prickles numerous, long, very stout; suckers numerous; fruit large, blunt-conic; drupelets large, dull red, with heavy bloom, coarse, dry, crumbly.

Prince of Wales. 1. *Mag. Hort.* **28**:154. 1861.

Cutbush's Prince of Wales. 2. *Gard. Mon.* **2**:332. 1860.

An English variety which originated previous to 1860; of no value in this country. Plants upright, vigorous, with numerous slender, purplish prickles; fruit large, blunt-conic; drupelets small, compact, regular, hairy, red, moderately firm, sweet; very good.

Princess Alice. 1. *Rec. Hort.* 45. 1866.

New in 1866. Raised by Cutbush & Son, Highgate, England. Plants very productive; fruit very large, slightly elongated; of first quality; late.

Prior Prolific. 1. *Jour. Pom. & Hort. Sci.* **3**:31. 1922.

Sent to the East Malling Research Station in England for trial. Similar to Marlboro but more vigorous; canes less erect and fruit larger.

Profusion. 1. Bunyard *Cat.* 50. 1913–14. 2. *Jour. Pom. & Hort. Sci.* **3**:31. 1922.

Originated near Maidstone, England; introduced by George Bunyard & Company of that place. Plants usually weak to medium in vigor, productive; canes medium in number, slender, erect, reddish purple, lightly glaucous, glabrous; prickles numerous, stout, soft; leaflets short, broad; fruit very large, oblong to somewhat roundish; drupelets large and deep; flesh thick, heavy, very soft.

Purple Cane. *Occidentalis* x *Strigosus.* 1. Fuller *Sm. Fr. Cult.* 147. 1867.

Fuller said in 1867 that this variety had been cultivated at least fifty years in the vicinity of New York. It is probable that the name was applied to all purple raspberries rather than to any specific variety. It was displaced by better sorts in the East, but was popular in the West much longer. Plants vigorous and productive; canes very strong, growing eight to twelve feet long, without suckers and propagating from the tips; prickles few, hooked; fruit medium or small, dark dull red, with bloom; drupelets large, soft, sweet; very good.

Purple Raspberry. *Occidentalis* x *Strigosus.* 1. Langley *Pomona* 122, 123. 1729.

Langley describes a purple raspberry the wood of which " is a dark Brown and very thick set with small prickly Excrescences." " The Purple Raspberry hath a pleasant Acidity in its Taste, and is somewhat later in Ripening than either of the other two (the red and white), for which Reason 'tis much esteemed for Preserving."

Queen. 1. *Rural N. Y.* **45**:480. 1886.

Origin unknown. Plants productive; fruit of good size but unattractive in color; quality good.

Ralph. *Occidentalis* x *Strigosus.* **1.** *Can. Exp. Farms Rpt.* 109. 1900.

On trial at the Central Experimental Farm, Ottawa, Canada in 1900. Plants unproductive; fruit of medium size, firm; good quality; late.

Rancocas. **1.** *Rural N. Y.* **43**:635. 1884. **2.** *N. Y. Sta. Bul.* **63**:685. 1893.

A chance seedling found on the farm of Albert Hansell, Rancocas, New Jersey, in 1877. William H. Moon, Morrisville, Pennsylvania, introduced it in 1884. As grown at this Station its chief characteristic was its earliness. The entire crop ripened in a few days. Plants dwarfish, weak, unproductive; suckering freely; foliage pale green; fruit small to medium, soft, juicy, of fair flavor; very early.

Ranere. **1.** *Elizabeth Nur. Cat.* 10. 1916. **2.** *Ohio Hort. Soc. Rpt.* 47. 1916. **3.** Hedrick *Cyc. Hardy Fr.* 279, fig. 1922.

St. Regis. **4.** *Rural N. Y.* **60**:787, fig. 295. 1911. **5.** Lovett *Cat.* 17, fig. 1917.

Introduced as an everbearing red raspberry, Ranere is chiefly valuable for spring bearing, most of the crop being borne in early summer. It appears in some of the nursery catalogs as the earliest of all red raspberries, but it is later than June and one or two other sorts on the grounds of this Station. Aside from its being a double-cropper, there is not much to recommend the variety. The berries run small, are mediocre in quality, and are variable in both size and color. The plants are hardy, usually vigorous, but very susceptible to crown-gall. Ranere is supposed to have originated in New Jersey a score or more of years ago and was grown for a time by a colony of Italian gardeners. About 1912, the J. T. Lovett Nursery Company, Little Silver, New Jersey, introduced the variety under the name St. Regis. It has since been advertised by many nurserymen under both names, although now the name "St. Regis" is rarely used.

Plants of medium height and vigor, attractive in appearance, rather upright, hardy, lacking somewhat in productiveness, unusually healthy, contracting mosaic very slowly and but moderately injured; autumn-bearing; propagated by suckers; canes numerous, slender, green changing to greenish brown, glabrous, thinly glaucous, with a few glands at the tips; prickles small, slender, weak, medium in number, purplish; leaflets 3–5, large, oval, very attractive dark green, dull, rugose, with finely dentate margins; petiole long, slightly prickly, with a few glands. Flowers very early; pedicels slightly glandular and pubescent; calyx prickly. Fruit very early; rather small and variable in size, seldom if ever large, hemispherical, glossy, bright red; drupelets of medium size, cohering poorly, the berries often crumbling, rather soft but variable, mild and insipid; quality poor unless well grown.

Rapid City. **1.** *S. Dak. Sta. Bul.* **104**:290. 1907.

A wild red raspberry from the Black Hills of South Dakota used by Prof. N. E. Hansen of the South Dakota Experiment Station in his breeding work. Its seedlings are fairly hardy and all bear fruits of good quality.

Reader Perfection. **1.** *Jour. Pom. & Hort. Sci.* **3**:32. 1922.

A new variety in England considered worthy of trial on the less fertile raspberry soils in that country. Plants vigorous and productive; canes numerous, stout, nearly erect, green with purplish tinges, moderately glaucous, glabrous; prickles moderately numerous,

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soft, dark bluish purple, very conspicuous; fruit large, conic, dull purplish red; drupelets small, soft and juicy.

Red Alpine. **1.** *Gen. Farmer* **3**:113. 1838. **2.** Dochnahl *Führ. Obstkunde* **4**:87. 1860.

Mentioned in a list of recommended sorts in the *Genesee Farmer* for 1838. Dochnahl describes it as similar to the wild *R. idaeus* of Europe but with fruits lighter in color, less aromatic, soft and not keeping long; plants very productive, sometimes fruiting in September.

Red Antwerp. **1.** Sickler *Teutsche Obst.* **15**:193. 1802. **2.** McMahon *Am. Gard. Cal.* 517. 1806. **3.** Brookshaw *Pom. Brit.* **1**: Pl. 2. 1817. **4.** Prince *Pom. Man.* **2**:164. 1832. **5.** *Horticulturist* **1**:169, fig. 1846–47. **6.** *U. S. D. A. Rpt.* 135, fig. 1866. **7.** Hogg *Fruit Man.* 395. 1866. **8.** *U. S. D. A. Farmers' Bul.* **887**:38. 1917. **9.** *Jour. Pom. & Hort. Sci.* **3**:17. 1922.

Late Bearing Antwerp. **10.** Lindley *Guide Orch. Gard.* 478. 1831.

Red Antwerp was described by Brookshaw in 1817 as a new variety, having been first raised by a person named Cornwell, Barnet, in Middlesex, England. It probably originated prior to 1800 as it was listed by Sickler in 1802, and was known in this country by McMahon in 1806. In Europe it has long been a standard variety and was grown considerably in this country until about 1850 when native sorts better adapted to the climate began to take its place. It is still grown on the Pacific Coast as a companion to Cuthbert and in Washington it is more productive than that variety. The term Antwerp has been applied to many sorts, and Downing wrote in the *Horticulturist* in 1846 that the true Red Antwerp was little known except around Boston and New York, many cultivators having a small and indifferent sort under that name. Most of our varieties having *R. idaeus* blood are probably derived from Red Antwerp. As grown in England the stock of this variety is badly mixed. Hogg, in 1866, mentioned that there were several forms of this variety, differing more or less from each other both in the fruit and the canes. In 1922 N. H. Grubb of the East Malling Research Station, found six distinct sorts bearing this name. He was unable to determine which was the original Red Antwerp. In this country it was early, productive, of fine quality and tender to cold, requiring winter protection north of the latitude of Philadelphia. It was placed in the catalog of the American Pomological Society in 1852, removed in 1862, returned to the list in 1897, where it remained in the last list of the Society in 1909.

Canes strong, long, yellowish green, slightly glaucous, occasionally tinged purple, covered below with dark brown prickles, which decrease in quantity upwards; in the autumn the canes become entirely brown sooner than those of others; bearing wood vigorous, and nearly smooth; leaves large, slightly rugose, plaited, irregularly serrated, dark green; fruit large, conical, dark red; drupelets middle sized; flavor rich and sweet.

Red Cane. **1.** *Mag. Hort.* **24**:420. 1858. **2.** *Mich. Sta. Bul.* **111**:54. 1894.

At one time a favorite market variety near Hartford, Connecticut. In the *Magazine of Horticulture* for 1858 it is thought to be the same as the American Red, but Crozier, in *Michigan Station Bulletin 111*, thinks it may have been either the Red Antwerp or the Hudson River Antwerp.

Red Cluster. 1. *Mich. Sta. Bul.* 81:11. 1892.

On trial at the Michigan Station in 1892. Plants described as moderately vigorous, moderately productive; fruit of medium size, roundish conic, red; good; early.

Red Cross. 1. *Jour. Pom. & Hort. Sci.* 3:33. 1922. 2. Bunyard *Cat.* 58. 1924.

A recent variety raised and introduced by George Pyne, Topsham, Devon, England. Described as being drouth resistant and worthy of trial in poor and dry soils. Plants vigorous and productive; canes moderately numerous and moderately stout, erect, green, slightly tinged purplish, pubescent; prickles moderately numerous, stout, inconspicuous; fruit large, very uniform in size, variable in shape, usually long-conic, with rounded apex, dull dark red, soft and juicy.

Red Diamond. 1. *Jour. Roy. Hort. Soc.* 29:CLXXIX, fig. 1903–04.

Exhibited before the fruit committee of the Royal Horticultural Society in 1904 by a Mr. Colwill, Sidmouth, England. It received an award of merit. Plants described as very large; fruit conical, dark red and pleasantly acid in flavor.

Red Jacket. 1. *Va. Sta. Bul.* 147:63. 1917.

A new variety resembling Cuthbert in all respects except season which is later and shorter. Recommended for general planting in Virginia.

Red Magnum Bonum. 1. *Jour. Pom. & Hort. Sci.* 3:34. 1922.

Grown occasionally in collections of varieties in England. Canes strong, erect, nearly glabrous, green, with numerous, stout, dark colored prickles; fruit above medium size, roundish, or oblong-conic; drupelets very large.

Red Pearl. 1. Downing *Fr. Trees Am.* 972. 1869.

Described by Downing in 1869 as bearing fruit of medium size, roundish conic, light red, moderately firm; scarcely good.

Red Queen. 1. *Am. Hort. Ann.* 102. 1870.

Fuller says this variety is known in some places as Franconia, in others as False Red Antwerp or Allen. He considers it an old foreign sort, the true name of which is lost. The plant is described as having vigorous canes, with few prickles, productive, succeeding on light soils; fruit large, round, light red; drupelets large, compact, firm, juicy and of excellent flavor.

Red Rose.

Originated in 1908 by Alvin G. Gray, Salem, Indiana, who described it as a cross between Cuthbert and Loudon. As grown at this Station the fruit is very firm, rather small and inclined to crumble. Plants medium in height, vigorous, upright, usually hardy, with a medium number of suckers, unproductive; canes slender, glabrous; prickles medium in number, slender, weak; fruit variable in size, small, roundish; drupelets variable in size, usually medium, crumbly, red, firm, not juicy, mild; fair; late.

Red Sweet. 1. Card *Bush-Fr.* 209. 1898.

Imported from Denmark by W. D. Barnes & Son, Middlehope, New York. On trial at this Station in 1895. Plants dwarfish, not very hardy, unproductive; fruit small, dull dark red, firm, mild, sweet; good.

Redfield. 1. *Meehans' Mon.* 4:140. 1894. 2. *N. Y. Sta. Bul.* 278:125. 1906.

A chance seedling sent out by J. Wragg & Sons, Waukee, Iowa, in 1894. As grown here it is inferior to Shaffer and Columbian. Plants vigorous, hardy, moderately productive; fruit small, dull, unattractive purple, moderately firm; fair in flavor and quality.

Reeder. 1. *Gard. Mon.* 24:116. 1882. 2. *N. Y. Sta. Bul.* 63:685. 1893.

A chance seedling found in a field of other sorts by a Mr. Reeder, Stevensville, Michigan, about 1875. It never became of much importance as the berries crumbled badly for a market variety. Plants vigorous, with few slender prickles; fruit of medium size, roundish, bright red, firm, juicy, crumbly; very good; late midseason, ripening over a long period.

Reliance. *Strigosus* x *Occidentalis.* 1. *Cult. & Count. Gent.* 40:470. 1876. 2. *N. Y. Sta. Bul.* 278:685. 1893.

Reliance is a descendant of Philadelphia, several generations removed. It was grown from seed by O. L. Felton, Merchantville, New Jersey, who exhibited it as a new variety at the Centennial Exposition in Philadelphia in 1876. For a while it was popular but as it was not enough of an advance over the Philadelphia to compete with other sorts, it soon went out. Beach described the plants as of Strigosus type, but it is listed among the purple raspberries by the American Pomological Society. The Society placed Reliance in its fruit list in 1881 and it still remained in the last catalog in 1909. Plants vigorous, hardy, moderately productive; fruit below medium in size, dark red, soft, juicy, sweet; very good; midseason.

Rex. 1. *Am. Pom. Soc. Rpt.* 285. 1921.

Mentioned in the *Fruit Belt* for February, 1920, as an everbearing red, fruiting from June till October. Fruit large, firm, sweet and of delightful flavor.

Ridgeway. 1. *Ind. Sta. Rpt.* 87. 1898. 2. *Mich. Sta. Bul.* 206:58. 1903.

Received at the Michigan Station about 1901 from M. H. Ridgeway, Wabash, Indiana. Plants vigorous, hardy, unproductive; fruit small, of good flavor and texture; midseason.

Riehl Perpetual. 1. *Ill. Hort. Soc. Rpt.* 202. 1911.

Plants described by E. H. Riehl, Alton, Illinois, as healthy, vigorous, fruiting entirely from new growth, bearing from May until frost, not hardy; fruit large, bright red.

Riley Early. 1. *Cult. & Count. Gent.* 32:210. 1868.

Reported as having been known in Burlington County, New Jersey, for several years. Plants described as vigorous and hardy with bright red, firm fruit; early.

Rivers Orange. 1. Downing *Fr. Trees Am.* 972. 1869.

Rivers Yellow. 2. *Mich. Sta. Bul.* 111:55. 1894.

Originated with Thomas Rivers, Sawbridgeworth, England, and first mentioned in this country by Downing in 1869. The variety resembles Yellow Antwerp. Plants strong, branching, not hardy; prickles not numerous, stout, greenish; fruit medium to large, roundish conic, reddish orange, drupelets large, soft, juicy, subacid but not rich.

Rochester.

According to a letter from W. Y. Velie, Marlboro, New York, received in 1916, this variety came originally from a Rochester nurseryman. The stock contains many mixtures and improved strains are claimed under the names of Coutant, Ward Seedling, Hyde, Alright, and Barry. Plants described as medium in vigor, needing winter protection; fruit is too soft for a commercial berry in wet seasons.

Round Antwerp. 1. *Jour. Hort.* 24:121. 1860.

Fruit described as large, round, deep red and much superior in flavor to that of Red Antwerp; plants dwarfish, slow-growing, productive.

Royal. 1. Bunyard *Cat.* 46. 1921.

Pyne's Royal. 2. *Jour. Pom.* 1:243. 1920. 3. *Jour. Pom. & Hort. Sci.* 3:32. 1922.

Raised by George Pyne, Topsham, Devon, England, in 1907 and introduced in 1913. It is considered one of the most promising of recent introductions in England because of the very large size of the fruit and heavy crops. Plants vigorous, stout, nearly erect, very productive and fairly drouth resistant; canes moderate in number, heavily glaucous, glabrous, dark reddish purple; prickles few, short, stout; leaves very much curled, with a sidewise twist; leaflets strongly rugose, dark dull green, tip leaves often very reddish; fruit very large, conic; drupelets large, firm, deep rich red, sweet.

Royal Church. 1. *U. S. D. A. Pom. Rpt.* 394. 1891. 2. *N. Y. Sta. Bul.* 278:119. 1906.

Discovered about 1881 by Royal Church, Harrisonville, Ohio, near a field in which Philadelphia, Herstine, and Brandywine had been growing a few years previously. It was introduced in 1893 by Green's Nursery Company, Rochester, New York. As grown at this Station it is a fairly good berry, but not equal to the best varieties. Plants vigorous, fairly hardy, productive; canes tinged reddish purple; foliage crinkled, dark green, with reddish tinge; fruit large, variable in color from light to dark red; drupelets large, inclined to crumble, firm, juicy; very good; late.

Royal Purple. *Strigosus* x *Occidentalis.* 1. Farmer *Cat.* 20, fig. 1909 2. Hedrick *Cyc. Hardy Fr.* 279. 1922.

The fruits of Royal Purple are not as attractive in appearance or as inviting in taste as those of Columbian and Shaffer with which it must compete. The variety may have a a place in commercial berry growing, however, because of the great hardiness of the plants and the lateness of the ripening period. The crop ripens one or two weeks later than that of Columbian and has a remarkably long season, lasting until early blackberries are ripe. The plants are also very productive, vigorous, and, as has been said, hardy, and moreover, are fairly immune to mosaic although subject to anthracnose. This variety originated as a chance seedling about 1898 with L. H. Girton, Bristol, Indiana.

Plants tall, vigorous, with an upright tendency, becoming slightly spreading, hardy, productive, contract mosaic slowly; propagated by tips; canes medium to slender but variable, green tinged with brownish red but gradually turning to a cherry-red as the wood ripens, heavily glaucous; prickles short, medium in thickness and strength, few, light brown at the tips; leaflets 3–7, large, the terminal often lobed, broadly oval, dull, medium to dark green,

ROYAL PURPLE

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rather thin, flattened or rugose, with serrate margins; petiole medium in length and thickness, prickly, glabrous, glaucous. Flowers late; pedicels prickly, eglandular, glabrous; calyx prickly. Fruit very late, extending the season of Columbian, inclined to grow in more compact clusters than Columbian or Shaffer; medium in size, broad-ovate, dull purple, adheres well to the torus which is roughish and bluntly pointed; drupelets small, round, with strong coherence; flesh somewhat dry, firm, subacid, insipid, lacks in flavor; quality inferior.

Ruby. 1. *Am. Hort. Ann.* 89. 1871.

Raised from seed of Allen by D. W. Herstine of Philadelphia. Plants vigorous and productive; canes strong, light green, tinged with purple, glaucous; prickles very few; foliage light green, pearly gray on the under side; fruit large, round, dark red, with large, hairy drupelets, subacid; excellent.

Ruby (of New York). 1. *Wash. Sta. Bul.* **87**:26. 1909. 2. *U. S. D. A. Farmers' Bul.* **887**:40. 1917.

A chance seedling which originated about 1896 with L. E. Wardell, Marlboro, New York, who introduced it in 1903. Said to be a seedling of Marlboro which it resembles, differing from that variety in being more productive and bearing firmer fruit. It is grown somewhat in the Hudson Valley and in New England, being considered desirable to grow with Cuthbert. As grown at this Station the fruit is not especially attractive nor is the quality high. It was placed in the catalog of the American Pomological Society in 1909. Plants medium in height and vigor, upright, fairly hardy, productive; suckers medium in number; canes medium to stocky, yellowish brown, glabrous; prickles medium in number, slender, weak; fruit of medium size, conic; drupelets medium in size, cohering well, bright red, firm, juicy, sweet; good; early.

Russell. 1. *Mag. Hort.* **24**:420. 1858.

Raised by Dr. G. W. Russell, Hartford, Connecticut, from seed of Yellow Antwerp, probably crossed with American Red which grew near it; seed was planted in 1851. The variety was first exhibited before the Horticultural Society of Hartford in 1854. Plants upright, vigorous, hardy and productive; canes light green, with few white prickles; fruit large, roundish conic, dark red, moderately firm, juicy, sweet; good.

Salzer Everbearing. 1. *Mich. Sta. Bul.* **111**:56. 1894.

Originated in Illinois. Introduced by the John A. Salzer Seed Company, La Crosse, Wisconsin, in 1894. Said to be a cross between Shaffer and Marlboro.

Saint Louis. 1. *Mo. Hort. Soc. Rpt.* 130. 1864.

Mentioned by N. J. Coleman as of unknown origin. Grown extensively around St. Louis about 1866. Plants said to be hardy, very productive; fruit bright red, firm, showy.

Sarah. 1. *Can. Exp. Farms Rpt.* 98, fig. 2. 1893. 2. *N. Y. Sta. Bul.* **278**:125. 1906.

Grown from seed of Shaffer by Dr. William Saunders while in London, Ontario. As grown here it was inferior to Columbian and Shaffer. Plants vigorous, hardy and moderately productive; said to sucker freely and to propagate naturally only in this way; fruit

above medium in size, round, unattractive, reddish purple, soft, juicy; good; ripens after Cuthbert.

Saskatoon. 1. *S. Dak. Sta. Bul.* **104**:291. 1907.

A wild red raspberry from Saskatchewan, Canada, used by Prof. N. E. Hansen of the South Dakota Experiment Station as a parent in breeding hardy varieties. It is very hardy and its seedlings are dwarfish and bear fruits of good size and quality.

Saunders. 1. *Horticulturist* **25**:310, Pl. 1870.

Originated by D. W. Herstine, Philadelphia, Pennsylvania, from seed of Allen supposed to have been pollinated by Philadelphia. It was named Saunders by a committee of the Pennsylvania Horticultural Society. Plants productive, suckering freely; canes green, shaded with purple; prickles numerous, small, light green; foliage light green; fruit very large, round, dark red; drupelets large; highly flavored.

Saunders (of Ontario). 1. *Ont. Fr. Gr. Assoc. Rpt.* 67. 1894.

A cross of Philadelphia and McCormick raised by William Saunders, London, Ontario. It was sent out by the Ontario Fruit Growers' Association in 1880. Said to be very productive and to propagate from tips only. Fruit medium in size, dark red.

Scarlet Gem. 1. *Col. O. Hort. Soc. Rpt.* 70. 1887.

A seedling of Crimson Beauty originated by Dr. J. Stayman, Leavenworth, Kansas, in 1876, and introduced by Hale Brothers, South Glastonbury, Connecticut, a few years later. It requires the presence of another variety for proper pollination and is unproductive. Fruit of medium size, round, bright red, firm; low quality; early.

Segrist. 1. Card *Bush-Fr.* 198. 1898.

A chance seedling found among plants of Kansas by Samuel Segrist, Holton, Kansas, in 1903; introduced in 1912 by F. W. Dixon, Holton, Kansas. As grown at this Station the plants are dwarfish and lacking in vigor. The fruit is attractive in appearance and of fairly good quality. Plants dwarfish, of medium vigor, upright-spreading, hardy and productive; suckers medium in number; canes stocky, green, with a very thin bloom, eglandular tips; prickles none; fruit above medium in size, uniform, roundish conic; drupelets of medium size, numerous, medium in coherence, bright attractive red, moderately juicy, firm, subacid; good; early midseason.

Semper Fidelis. 1. *Mag. Hort.* **29**:460. 1863. 2. *Jour. Pom. & Hort. Sci.* **3**:24. 1922.

Mentioned in 1863 as a new English variety just introduced. It is still grown in England where it is well liked for jam, the product being clear and of good color. As grown in England the plant is vigorous and very productive; canes numerous, slender, erect, green with purplish tinge, glaucous; prickles numerous, stout, dark purple, conspicuous; foliage light green; fruit of medium size, oval or somewhat conic, dull dark purplish red; very acid; late.

Seneca. 1. *Am. Pom. Soc. Rpt.* 207. 1922. 2. *N. Y. Sta. Bul.* **497**:16. 1923.

There is nothing to add to or take from the description of this sort as first published by this Station in the reference given. The description is republished verbatim. Seneca, a sister seedling to Cayuga, is so similar that the two might almost be put out as one variety.

SENECA

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The description of Cayuga answers for that of Seneca if the following exceptions be noted. The plants of Seneca are not so tall, are usually markedly stockier in cane; and have fewer and smaller prickles. The flowers bloom early in June, a few days later than those of Cayuga. The fruit is a little later than that of Cayuga and a little earlier than that of Cuthbert. The berries in appearance and quality can hardly be distinguished from those of Cayuga, although upon close inspection it is seen that the drupelets of Seneca are larger and the shape is a little more conical. The quality of the two fruits is much the same, the only difference being more sprightliness in Seneca. Seneca is recommended to precede and to take the place of Cuthbert. Fruit growers will want to know how these two new berries compare with Cuthbert in susceptibility to mosaic, the disease which now threatens to destroy commercial berry growing in America. No differences can be noted in the three varieties in this respect. Seneca originated at the New York Agricultural Experiment Station, at Geneva, in 1911, as a cross between June and Cuthbert. The variety was distributed by the New York State Fruit Testing Association, Geneva, New York, in 1922.

Serridge House. 1. *Jour. Roy. Hort. Soc.* **37**:562. 1911–12.

On trial on the test grounds of the Royal Horticultural Society in Wisley, England, in 1911. Plant described as not productive; canes fairly strong, of a glaucous purple color and with very many prickles; fruit large, round, light red.

Shaffer. *Strigosus* x *Occidentalis*. 1. *Rural N. Y.* **42**:638. 1883. 2. *N. Y. Sta. Bul.* **278**:125. 1906.

Shaffer Colossal. 3. *Am. Pom. Soc. Cat.* 46. 1883.

Shaffer was the first purple raspberry to meet with the approbation of berry growers and was for many years the most prized of the hybrids. It has been nearly superseded by Columbian, which resembles but surpasses Shaffer in several qualities as was noted in the discussion of Columbian. It is still grown somewhat for canning in berry-canning regions. But the berries have a tendency to go to pieces in the can, and shrink more than those of some other purple sorts. Shaffer is propagated most by tips, as it does not sucker. The plants are less hardy than those of several other hybrid kinds. This old variety originated with George Shaffer, Scottsville, New York, about 1871, as a chance seedling. It was introduced in 1878. The American Pomological Society added Shaffer to its recommended list of fruits in 1883.

Plants tall, vigorous, more upright than Columbian, slightly spreading, lacking somewhat in hardiness, very productive, contract mosaic slowly, susceptible to anthracnose; propagated by tips; canes somewhat stocky but less so than Columbian, green changing to brownish red, darker than those of Columbian, heavily glaucous; prickles slender, weak, very few, with a tinge of red at the tips; leaflets 3–5, broad-oval, the terminal one often lobed, dull, medium to dark green, rugose, with serrate margins; petiole medium in length and thickness, glabrous, glaucous, with almost no prickles. Flowers late; pedicels prickly, glandular, lightly pubescent; calyx prickly. Fruit very late, a little before Columbian; large to very large, broadly hemispherical, dull purple but lighter than Columbian, adheres fairly well to the torus which is roughish and bluntly pointed; drupelets large, round, often

with rather weak coherence; flesh juicy, rather soft, less sweet and less highly flavored than Columbian, sprightly, aromatic; quality good.

Sharpe. 1. *Mich. Sta. Bul.* 111:58. 1894.

A seedling originated by Prof. William Saunders, London, Ontario. Mentioned as on trial at the experimental farm at Agassiz, British Columbia.

Shinn. 1. *Can. Exp. Farms Rpt.* 109. 1900.

A seedling of unknown parentage, originated by Dr. William Saunders, Ottawa, Canada. Plants vigorous, very hardy and very productive; fruit medium in size, roundish, dark purplish red, moderately firm, juicy, acid; medium in quality; midseason.

Shipper Pride. 1. *S. Dak. Sta. Bul.* 104:291. 1907.

A mixture in a lot of plants received from New Jersey by Empenger Brothers, Maple Plain, Minnesota, about 1901. This plant was propagated, named and introduced by Empenger Brothers. Plants dwarfish, hardy; fruit small and soft.

Short-jointed Cane. 1. Prince *Pom. Man.* 2:168. 1832.

Described by Prince in 1832 as having short-jointed, nearly spineless canes; fruit larger and later than the Common Red, with a pleasing flavor.

Silver Queen. 1. *N. Y. Sta. Bul.* 63:691. 1893.

Received at this Station in 1885 from R. Johnson, Shortsville, New York, who renamed a berry he received from L. M. Macomber, North Ferrisburg, Vermont, under the name of Silver Skin. Plants unproductive and tender to cold; fruit medium to large, clear pale yellow, very soft, juicy, nearly sweet, delicate; very good to best.

Sioux. 1. *Am. Pom. Soc. Rpt.* 162. 1920.

Introduced by the Rosebud Nursery, Winner, South Dakota. Selected from wild plants on the Sioux Indian Reservation; very hardy.

Sir John. 1. Card *Bush-Fr.* 210. 1898. 2. *Can. Exp. Farms Bul.* 56:48. 1907.

A seedling of Biggar raised by Dr. William Saunders, Ottawa, Canada. Plant described as a very strong grower, hardy, and productive; fruit above medium in size, roundish, bright red; drupelets large, soft, crumble easily, subacid, pleasing; good; early.

Smith Purple. *Occidentalis* x *Strigosus.* 1. *N. Y. Sta. Bul.* 63:679. 1893.

A chance seedling found by B. F. Smith, Lawrence, Kansas, who sent plants to this Station for trial in 1891. Except for the fruit which is purple and of medium size, the variety has all the characteristics of a black raspberry.

Smooth Cane. 1. *S. Dak. Sta. Cat.* 1922.

A cross of the wild red raspberry from the Black Hills of South Dakota and the Minnetonka. Originated by Prof. N. E. Hansen of the South Dakota Experiment Station; introduced by that Station in 1922. Canes strong, stocky and without prickles; fruit round, three-fourths of an inch in diameter, firm.

Souchetti. 1. *Gard. Mon.* 2:333. 1860.

White Transparent. 2. Thomas *Am. Fruit Cult.* 436. 1867.

Blanche Souchet. 3. *Jour. Roy. Hort. Soc.* 22:201. 1898.

SHAFFER

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Originated by M. Souchet of Bagnolet near Paris, France. It was introduced into this country about 1850 by Aubry & Souchet, Carpenters Landing, New Jersey. A fine-flavored yellow berry, but too soft and tender to cold. Plants moderately vigorous, not hardy, productive; prickles few, short, slender, greenish; fruit large, elongated-conic, irregular; drupelets medium in size, compact, pale creamy yellow, soft, juicy, sweet; very good.

Southern. 1. *Austin Nur. Circ.* 1922.

Introduced in 1922 by the Austin Nursery Company, Austin, Texas, who state that they received the berry from the Bureau of Plant Introduction of the United States Department of Agriculture. It was brought to this country from the hot, humid section of China by F. N. Meyer, agricultural explorer, and is recommended for trial in similar sections of this country. Plants erect, stiff, not over three feet high; fruit borne in small clusters on current season's growth on one-year canes; berries one-half to three-fourths of an inch across, without a core, clear light red, sweet, aromatic; fruiting season long.

Souvenir de Desire Bruneau. 1. *Rev. Hort.* 487. 1909. 2. Bobbink & Atkins *Cat.* 1919.

Mentioned as new in 1909, and as having received a certificate of merit from the Societe Nationale d'Horticulture de France. An everbearing variety with large, long, red fruits, firm, juicy, sweet; good mellow flavor.

Spineless. 1. *S. Dak. Sta. Cat.* 1922.

Originated by Prof. N. E. Hansen of the South Dakota Experiment Station by whom it was introduced in 1922. It was grown from seed of a wild red raspberry from Cavalier, North Dakota, pollinated by Loudon. Canes without prickles, somewhat reddish towards the tips and resistant to anthracnose; fruit three-fourths of an inch in diameter, of good flavor.

Starlight. 1. *S. Dak. Sta. Cat.* 1922.

A seedling of a wild red raspberry from Cavalier, North Dakota, crossed with Minnetonka. Originated by Prof. N. E. Hansen of the South Dakota Experiment Station by whom it was introduced in 1922. Canes with some thorns and very little anthracnose; fruit larger than Ohta and equally bright in color.

Stayman No. 1. *Occidentalis* x *Strigosus.* 1. *Mich. Sta. Bul.* **111**:61. 1894.

A seedling of Shaffer raised by Dr. J. Stayman, Leavenworth, Kansas, in 1884. It propagates from the tips; the berries are large, handsome, resemble Marlboro, firm; good.

Steel Victoria. 1. *Gard. Chron.* 3rd Ser. **16**:221. 1894. 2. *Jour. Pom. & Hort. Sci.* **3**:35. 1922.

Introduced in 1894 by Messrs. Watkins & Simpson, Strand, England. Described as very similar to Norwich Wonder, differing from that variety in transplanting with difficulty; season a little later and the fruit less conic.

Stoever. 1. *Horticulturist* **15**:76. 1860.

Discovered near Lake Dunmore, Vermont, in 1858 by Jefferson E. Stoever, who moved it to his garden at Taconey, near Philadelphia, where it fruited in 1859. Downing

gives Stoever as a synonym of American Red, and the variety is probably a typical wild *R. strigosus*. Plants very vigorous, with nearly smooth reddish-brown canes when mature, unproductive; fruit large, roundish conic, bright red, sprightly, with a strong wild flavor.

Storrie Excelsior Perpetual. 1. *Gard. Chron.* **64**:98. 1918.

First brought to notice by Messrs. Storrie & Storrie, Glencarse, Perthshire, England, in 1918 as a large, fine-flavored, autumn-fruiting sort.

Sucrée de Metz. 1. *Ohio Hort. Soc. Rpt.* 32. 1869. 2. *Guide Prat.* 21. 1895.

Originated by MM. Simon-Louis Frères, Metz, France, who introduced it in 1866. Imported into this country in 1869 by L. Ritz of Ohio. Plants upright, vigorous, very productive; canes pale green, with numerous small prickles; fruit large, elongated, clear yellow, soft, juicy, perfumed; very good; season July to October in France.

Sugar Hybrid. *Strigosus* x *Occidentalis*. 1. Burbank *Cat.* 29. 1893.

Originated and introduced by Luther Burbank, Santa Rosa, California, as a second-generation seedling of Shaffer by Souhegan. Plants described as tall, slender, productive and almost thornless; fruit large, dark red, very sweet.

Sunbeam. *Strigosus* x *Occidentalis*. 1. *S. Dak. Sta. Bul.* **104**:292. 1907. 2. *U. S. D. A. Farmers' Bul.* **887**:40. 1917.

A cross between a wild red raspberry from Cavalier County, North Dakota, and Shaffer, which was originated by Prof. N. E. Hansen of the South Dakota Experiment Station; introduced by that Station in 1906. Where extreme hardiness and drouth resistance are essential, Sunbeam may be of value, but as grown at this Station, it is inferior to standard sorts in size, color and flavor of fruit. Plants tall, vigorous, upright-spreading, very hardy, productive, propagate by suckers which are very numerous; canes medium in size, bright red, glaucous, with a medium number of slender prickles; fruit variable in size, averaging below medium, short, roundish; drupelets of medium size and coherence, dark red, moderately firm, acid; fair; early.

Superb. 1. *W. N. Y. Hort. Soc. Rpt.* 23. 1882. 2. *N. Y. Sta. Bul.* **63**:686. 1893. *Churchman Superb.* 3. *Gard. Mon.* **23**:257, Pl. 1881.

Originated about 1874 by John Churchman, Burlington, New Jersey, who sent it out in 1881. It was supposed to be a seedling of Philadelphia and superior to that variety in size of fruit. As grown here it was unproductive, the fruit was too variable in size, and inclined to crumble. The American Pomological Society placed Superb in its catalog in 1883 and removed it in 1899. Plants moderately vigorous, hardy, unproductive; suckering slowly; fruit above medium in size, moderately firm; drupelets large, dark red; good; late.

Superlative. 1. *Jour. Hort.* **17**:103. 1888. 2. *Gard. Chron.* 3rd Ser. **10**:110, 526. 1891. 3. *Gard. & For.* **10**:384. 1897. 4. Bunyard *Cat.* 50. 1915–16.

As its history shows, Superlative is an old English variety, which has been grown more or less wherever the red raspberry is cultivated. In New York and eastern America the canes are not sufficiently hardy, vigorous, or productive. The variety is highly prized on the Pacific Slope, especially near San Francisco. The fruits, while of the very best quality, are too soft for shipping long distances. The berries are large and of the very best quality. Superlative was raised by a Mr. Merryfield, Waldershare Gardens, Dover, England, about

1877. It was introduced about 1888 and soon after brought to America by Ellwanger & Barry, Rochester, New York. In 1909 the American Pomological Society placed Superlative in its list of recommended fruits.

Plants dwarfish, lacking in vigor, upright, tender to cold, unproductive unless well grown, propagated by suckers; canes numerous, slender, green changing slowly to reddish brown, glabrous, heavily glaucous; prickles small, very short, weak, numerous, dull red; leaflets 3–5, broad-oval, very thick, dark green or bluish green, usually strongly rugose and much curled, with coarsely and irregularly dentate margins; petiole long, thick, prickly, pubescent; pedicels thick, stout, medium in length, with few to many rather large prickles; calyx usually without prickles, or rarely few. Fruit medium early; large to very large, long-conic, dark red, too dull to be attractive, adheres strongly to the torus which is small and roughish; drupelets large, round, cohering so that the berries do not crumble; flesh juicy, soft, rich, sprightly, pleasantly aromatic; quality very good to best.

Superlative Improved. 1. *Wash. Sta. Bul.* **87**:23. 1909.

Described as a new raspberry in western Washington, satisfactory wherever planted. It is said to endure dry summers and cold winters better than most varieties because of its deep-rooting habit. As grown at this Station it seems to be identical with Superlative.

Surpasse Fastolff. 1. *Am. Hort. Ann.* 103. 1870. 2. *Soc. Nat. Hort. France Pom.* 209, Pl. 1907. 3. *N. Y. Sta. Bul.* **278**:122. 1906.

New Fastolff. 4. *Am. Hort. Ann.* 91. 1871.

Grown from seed of Fastolff, previous to 1870 by MM. Simon-Louis Frères of Metz, France. It was introduced by the originators about 1870. In this country it did not pass the trial stage. The following description is from plants imported from France by the United States Department of Agriculture. Plants moderately vigorous, hardy, moderately productive; fruit large, light red, rather soft; flavor and quality inferior.

Surpasse Merveille. 1. *Rec. Hort.* **45**. 1866. 2. *N. Y. Sta. Bul.* **278**:122. 1906.

Grown from seed by MM. Simon-Louis Frères, Metz, France, and introduced by them in 1864. As grown at this Station the plants are vigorous, hardy and productive. The fruit is above medium in size, becoming smaller as the season advances, moderately firm and good in flavor and quality.

Surprise. 1. *Cult. & Count. Gent.* **46**:473. 1881. 2. *Mich. Hort. Soc. Rpt.* 268. 1885.

A chance seedling of Franconia, which originated in Montgomery County, New York, previous to 1881. Plants vigorous, not very hardy, productive; fruit large, roundish, slightly conic, dark red, with slight bloom, soft, crumbly, sprightly; fair; late.

Surprise (of Breese). *Occidentalis* x *Strigosus.* 1. Card *Bush-Fr.* 184. 1898.

Introduced by H. G. Breese, Hoosick, New York. Described as having canes of the blackcap type, with a tendency to autumn-fruiting. Fruit dark red, firm, with red raspberry flavor.

Surprise (of California). 1. *U. S. D. A. Farmers' Bul.* **887**:40. 1917.

A chance seedling found in 1901 by D. W. Coolidge, Pasadena, California, in a field of many sorts that had run wild for several years. It was introduced in 1908 by J. B. Wag-

ner, Pasadena, California. This is considered one of the most desirable varieties for central and southern California, bearing some fruit every month in the year, and an autumn crop elsewhere. As grown at this Station the plants are tender to cold, winter injury ranging from five to ninety per cent. The plants are dwarfish, producing light crops, and the color of the fruit is unattractive dull red. Plants dwarfish, weak, upright, tender to cold, unproductive; suckers below medium in number; canes medium in size, glabrous, with numerous prickles; fruit of medium size, roundish; drupelets medium in size, number and coherence, dull, dark red, medium juicy, firm, very sprightly; fair; early.

Surprise d'Automne. 1. *Ohio Hort. Soc. Rpt.* 32. 1869. 2. *Soc. Nat. Hort. France Pom.* 210. 1907. 3. *N. Y. Sta. Bul.* **278**:122. 1906.

Originated with MM. Simon-Louis Frères, Metz, France, who introduced it in 1865. L. Ritz of Ohio imported it into this country about 1869. Considered a valuable autumn-fruiting sort in Europe but is of little value as grown at this Station. The plants are moderately vigorous, hardy, and moderately productive; fruit below medium in size, moderately firm, yellow, not very attractive; flavor and quality not high.

Sweet Yellow Antwerp. 1. *Jour. Hort.* **24**:121. 1860.

An old English variety. Larger and with more orange than Yellow Antwerp. Canes very slender, with few prickles; fruit of medium size, roundish obtuse-conic, light yellow; drupelets small, soft, juicy, very sweet.

Syracuse. 1. Green *Cat.* 38, fig. 1910. 2. Hedrick *Cyc. Hardy Fr.* 280. 1922.

Syracuse is a typical variety of the Idaeus type. Neither fruit nor plant differ greatly from those of Superlative. While hardier than Superlative, the plants are not sufficiently hardy and lack in vigor and productiveness as well. These defects bar it from commercial plantations, but it is, however, an excellent sort for the home garden. This variety originated as a chance seedling in a garden at Syracuse, New York, about 1900, and was distributed by Green's Nursery Company, Rochester, New York, about 1910.

Plants of medium height and vigor, upright-spreading, a little tender to cold, moderately productive but variable; propagated by suckers; canes medium in number and stockiness, green changing to reddish brown, glaucous, with eglandular tips; prickles small, slender, strong, very numerous, purplish green; leaflets 3–5, large, thick, ovate to roundish oval, dark green, with dentate margins; petiole medium in length and thickness, glabrous, glaucous, slightly prickly. Flowers early; pedicels prickly, eglandular, pubescent; calyx prickly. Fruit midseason; large, broadly conical, light red, adheres well to the torus which is roughish and pointed; drupelets rather large, with fairly good coherence; flesh juicy, not very firm, pleasantly aromatic, sprightly, varies considerably in flavor; not above good in quality.

Talbot. 1. *N. Y. Sta. Bul.* **91**:204. 1895. 2. *Ibid.* **278**:122. 1906.

A chance seedling discovered in the garden of J. W. Talbot, Norwood, Massachusetts, about 1888. Not equal to other sorts as grown at this Station. Plants vigorous, usually hardy, productive; fruit above medium in size, attractive red; drupelets large, soft, juicy, slightly acid; good.

Talcott. 1. *Mich. Sta. Bul.* **81**:11. 1892.

Sent out for trial in 1883 by Hale Brothers, South Glastonbury, Connecticut. Fruits very similar to those of Turner except in form, which is ovate instead of roundish conic. Plants not vigorous; fruit small and very early.

Tall Red Cane. 1. Prince *Pom. Man.* **2**:168. 1832.

Described by Prince in 1832 as producing good crops, and having canes covered with numerous fine prickles or hairs. Fruit of good size, roundish, not of high flavor; the berries drop easily as soon as ripe.

Teletaugh. *Occidentalis* x *Strigosus.* 1. *N. Y. Sta. Bul.* **278**:126. 1906.

A cross of Shaffer and Gregg originated by J. F. Street, West Middleton, Indiana. It is inferior to Shaffer. Plants of medium vigor, hardiness, and productivity; fruit below medium in size; drupelets large, inclined to crumble, moderately firm, unattractive dark purple; fair in flavor and quality.

Thompson. 1. *N. Y. Sta. Bul.* **278**:119. 1906.

Thompson Early. 2. *Mich. Sta. Bul.* **67**:12. 1890.

Thompson Early Prolific. 3. *Can. Cent. Exp. Farm Bul.* **22**:21. 1895.

A chance seedling introduced by the Cleveland Nursery Company, East Rockport, Ohio, in 1888. Canes slender, nearly free from prickles, dark red, upright, vigorous; fruit firm, medium in size, round, bright red; of fair quality; ripens the first of July.

Thompson Early Pride. 1. *N. Y. Sta. Bul.* **15**:112. 1888.

Early Pride. 2. *Ibid.* **63**:682. 1893.

Introduced by the Cleveland Nursery Company, East Rockport, Ohio, in 1888. Very similar to Thompson, differing from that sort chiefly in darker-colored, juicier fruit.

Thornber. 1. *Am. Pom. Soc. Rpt.* 285. 1921.

A chance seedling which originated with W. S. Thornber, Clarkston, Washington. Plants very vigorous and hardy; fruit very large, attractive dark red; rich flavor.

Thunderer. 1. *Am. Pom. Soc. Rpt.* 214. 1856. 2. Downing *Fr. Trees Am.* 660. 1857.

Imported from England previous to 1856. Very similar to Franconia. It was recommended for trial by the American Pomological Society in its fruit list for 1856 and 1860 but was never placed in the list of sorts for general cultivation. Plants upright, vigorous, productive; prickles few, red; fruit large, blunt-conic, dark red, with an acid flavor.

Thwack. 1. *Gard. Mon.* **18**:113. 1876. 2. *N. Y. Sta. Bul.* **63**:686. 1893.

Introduced about 1877 by Prof. Watson Foster, Louisiana, Missouri. The original plants were received from T. S. Wilson, Brandon, New York, with the statement that the variety was a cross between Herstine and Brandywine. For a while Thwack was considered a good market sort in the Middle West and was placed in the catalog of the American Pomological Society in 1883 where it remained until the last list in 1909. Plants vigorous, hardy and productive; canes stout, brownish green, with few prickles; fruit large, ovate-conic, bright red, firm, moderately juicy, sweet, not rich.

Todd Perfection. 1. King Bros. *Cat.* 36. 1916.

Offered by King Brothers, Dansville, New York, in 1916, as a new early sort from the Hudson River section. Plants productive, hardy; fruit firm.

Trusty. 1. *Mich. Sta. Bul.* 111:64. 1894.

On trial at the experimental farm at Agassiz, British Columbia. Originated by Prof. William Saunders, London, Ontario.

Türcks Neue Rothe. 1. Lucas-Oberdieck *Ill. Handb. Obst.* 7:288. 1875.

Van Turocks New. 2. *Am. Hort. Ann.* 103. 1869.

Grown from seed of Fastolff by Herrn V. Türck, Potsdam, Germany. Described as more vigorous, with larger fruit and earlier than its parent. Imported into this country in 1869 by A. S. Fuller from Frederick Maurer, Jena, Germany. Plants very vigorous and productive; fruit very large, roundish, dark red, firm, sweet and aromatic; ripe in the middle of June in Germany.

Turner. 1. *Am. Hort. Ann.* 103. 1869. 2. *Horticulturist* 24:275. 1869.

Red Thornless. 3. *Gard. Mon.* 17:176. 1875.

Southern Seedling. 4. *Ibid.* 17:333. 1875.

Southern Red Thornless. 5. *Ibid.* 18:80, 242. 1876.

At one time a standard sort, and for several decades the most prized of the red raspberries, Turner is now seldom found in commercial plantations. It is still grown, however, for home use and local markets where hardiness is a prime requisite. The fruits are of the very best quality but are small, many of them are imperfect, and a good many blossoms are abortive. The season is early and the plants remain in bearing a long time. Turner originated nearly 80 years ago with Professor J. B. Turner, Jacksonville, Illinois, supposedly as a seedling of Red Antwerp. The variety has long been esteemed because of its extreme hardiness. Turner was added to the recommended list of fruits of the American Pomological Society in 1877, a place it still holds.

Plants medium in height and vigor, upright-spreading, variable in yield, very productive in number of berries but not in measured yield, extremely hardy, contract mosaic very slowly; suckers very numerous; canes very slender, branching freely, silvery green turning to a distinct purplish or lilac-red, markedly glaucous, with many glands near the tips; prickles small, very slender, weak, few to many in number, tinged red; new leaves at tips of suckers markedly bronzed; leaflets usually 5, of medium size, variable in shape, dull, rugose, with serrate margins; petiole slender, very prickly, slightly pubescent, very glandular, glaucous. Flowers midseason, often imperfect, or abortive; pedicels prickly, glandular, lightly pubescent. Fruit early midseason or earlier, with a long-picking period; small, often imperfect, roundish ovate, bright attractive red, adheres fairly well to the torus which is smooth and short pointed; styles noticeable; drupelets large, elliptical, cohering poorly so that the berries crumble; flesh juicy, soft, tender, sprightly, aromatic; variable in quality.

Twentieth Century. 1. Card *Bush-Fr.* 200. 1917.

A chance seedling found in the garden of a Mr. Ford, Marlboro, New York, who had been growing it for some time previous to 1905. The variety attracted the attention of L. L. Woodford, Syracuse, New York, in 1905, who in 1909 named the berry Twentieth Century. The variety is of the type of Syracuse, tender to cold and rather soft for shipping. Plants of medium height and vigor, upright-spreading, productive, tender to cold, susceptible

to anthracnose; suckers medium in number; prickles medium in number, slender; fruit large, nearly conic; drupelets large, medium in number and coherence, medium red, moderately juicy, melting, sweet, slightly aromatic; good; midseason.

Twice Bearing. 1. Mawe-Abercrombie *Univ. Gard. Bot.* 1778. 2. Downing *Fr. Trees Am.* 517. 1845.

An old English variety, once valued for its autumn crop. According to Downing it is distinct from Double Bearing, being unproductive, and bearing small, inferior fruit.

Twilight. 1. *S. Dak. Sta. Cat.* 1922.

Grown from mixed seed of a lot of wild red raspberries of the Dakotas, Manitoba, and Saskatchewan by Prof. N. E. Hansen of the South Dakota Experiment Station. Introduced by that Station in 1922. Canes strong and stocky, with some prickles; fruit of medium size, light red; good.

Van Fleet. *Innominatus* x *Strigosus.* 1. *U. S. D. A. Dept. Circ.* **320**:1–13. 1924. 2. *U. S. D. A. Official Rec.* **4**:6. 1925.

A cross of *Rubus innominatus* by Cuthbert, originated in 1911 by Dr. Walter Van Fleet, Superintendent of the United States Plant Introduction Garden, at Chico, California. Plants were received for trial at this Station in the spring of 1922. As grown here Van Fleet is inferior to standard sorts in size, color, flavor and shipping quality of fruit. It may be of value as a parent in breeding late varieties. It endures hot weather and is recommended especially for the southern states where the red varieties fail. Plants tall, vigorous, upright to slightly spreading, not fully hardy, moderately productive; suckers rather few, propagates by tips; canes stocky, numerous, reddish, glaucous, glabrous, with eglandular tips; prickles medium in number, short, slender; leaflets medium green, dull, flat, heavily tomentose below; flowers small, rose-colored, very late; fruit below medium in size, uniform, broadly roundish; drupelets medium in size and number, dull light red, tender, juicy, mildly subacid, lacking character; fair; very late.

Vermont. 1. *N. Y. Sta. Bul.* **63**:691. 1893.

A seedling of Champlain originated by L. M. Macomber, North Ferrisburg, Vermont; introduced about 1893. It was placed in the catalog of the American Pomological Society in 1901 and remained in the last catalog in 1909. Plants of the Idaeus type; fruit large, pale yellow, with white bloom, very soft, juicy and of the highest quality.

Victoria. 1. *Mag. Hort.* **7**:287. 1841. 2. Downing *Fr. Trees Am.* 518. 1845.

Introduced from England about 1841. Similar to Red Antwerp in size and flavor of fruit and excels it in productiveness.

Victory. 1. Baldwin *Cat.* 20, fig. 1919. 2. *Am. Pom. Soc. Rpt.* 162. 1920.

Victory is said to be a Cuthbert seedling. On the grounds of this Station the varieties are seemingly identical. The description of Cuthbert answers for the two varieties. Were it not for the certainty with which its origination is stated, one knowing the two varieties would not hesitate to say that Victory is Cuthbert renamed. Victory originated about 1910 with A. J. Hartung, Onekama, Michigan, and introduced in 1918 by O. A. D. Baldwin, Bridgman, Michigan.

Viking. 1. *N. Y. Sta. Bul.* **278**:119. 1906.

Originated by Charles H. Koch, Middlehope, New York, who sent plants to this Station in 1895. Not equal to standard varieties. Plants medium in vigor, hardiness and productivity; fruit of medium size, round, attractive red; good flavor and quality.

Viking (of Ontario). *Strigosus* x *Idaeus.*

A cross of Cuthbert by Marlboro originated in 1914 by the Horticultural Experiment Station, Vineland, Ontario; introduced by that Station in 1923. The following description is furnished by E. F. Palmer of the Vineland Station. Canes upright, very strong, vigorous and very productive; suckers fairly numerous; prickles practically none; foliage thick and dark green; fruit large, conical, slightly lighter red than Cuthbert, firm, does not crumble; good quality; season several days earlier than Cuthbert.

Virginia Red. 1. Prince *Pom. Man.* **2**:167. 1832.

Described by Prince in 1832. Canes reach a height of five feet or more, producing good crops in favorable locations; fruit round, slightly oval, larger than the Common Red, and of good flavor.

Vorster. 1. Dochnahl *Führ. Obstkunde* **4**:84. 1860. 2. *Am. Hort. Ann.* 103. 1869.

Originated in Metz, France, about 1849. Considered a fine dessert variety in Germany. Imported into this country in 1869 by A. S. Fuller. Plants very vigorous and productive; fruit very large, elongated, dark red, sweet and aromatic; ripe in June in Germany.

Wagner. *Occidentalis* x *Strigosus.*

Offered for sale in 1925 by the East Rochester Nurseries, East Rochester, New York. Described as a cross between Columbian and Cuthbert with strong, hardy, very productive plants. Canes thornless and propagating from the tips; fruit purplish red, with flavor similar to Cuthbert.

Walker. 1. *Horticulturist* **8**:187. 1853.

President Walker. 2. *Mag. Hort.* **17**:333. 1851.

Raised by Dr. W. D. Brincklé of Philadelphia previous to 1851. It was placed in the list of promising new sorts by the American Pomological Society in 1854, remaining there until 1862. Canes strong, with few stiff purplish prickles; very productive; fruit large, round, dark red, soft, juicy, sprightly; good; keeps well on the plant.

Wallace. *Occidentalis* x *Strigosus.* 1. *N. Y. Sta. Bul.* **278**:126. 1906.

A chance seedling found in his orchard in 1891 by T. G. Wallace, Atlantic, Iowa; introduced in 1898 by O. W. Rich, of that place. Plants vigorous, fairly hardy, productive; fruit of medium size, unattractive dull reddish purple, moderately firm, more acid than Shaffer; fair in quality.

Walton. *Occidentalis* x *Strigosus.*

Brought into cultivation from the wild near Catawissa, Pennsylvania, prior to 1840 by George Shoemaker, Washington, District of Columbia. In 1910 plants were sent to this Station for trial by the Andorra Nurseries, Chestnut Hill, Pennsylvania. As grown here the variety has no value. Plants of fair vigor, tender to cold and not very productive;

fruit small, irregular, many berries imperfectly developed, purple, crumbles badly, soft, tart; early, with autumn-fruiting tendency.

Wauregan. 1. *Horticulturist* **25**:100, fig. 1870.

Discovered about 1855 in Norwich, Connecticut, by Dr. L. L. Button of that city. A. S. Fuller was of the opinion that it was very similar if not identical with Belle de Fontenay. Plants similar to Orange; fruit firm, highly flavored, continues long in bearing.

Welsh. 1. *N. J. Hort. Soc. Rpt.* 21. 1881. 2. *Ibid.* 39. 1908.

Grown from seed by Isaac Welsh, near Merchantville, New Jersey, who introduced it about 1882. In parts of New Jersey it has superseded Cuthbert, being earlier and hardier than that variety. It is of little importance elsewhere. As grown here the plants lack vigor and the fruit is too small and unattractive. Plants of medium height and vigor, upright, hardy and productive; suckers medium in number; canes slender, green, glabrous, heavily glaucous, with glandular tips; prickles small, slender, few; flowers early; fruit below medium in size, roundish conic; drupelets medium in size, cohering strongly, medium red, moderately juicy, mild, sweet; early.

Wetherbee. *Occidentalis* x *Strigosus.* 1. *Gard. Mon.* **22**:81. 1880.

Originated in New Jersey about 1880. Plants very vigorous, hardy, moderately productive, tip-rooting; fruit small, round, purple, with slight bloom, moderately firm, sprightly; very late.

White Magnum Bonum. 1. Wright *Fr. Gr. Guide* **6**:204. 1892. 2. Bunyard-Thomas *Fr. Gard.* 165. 1904.

Yellow Magnum Bonum. 3. *U. S. Pat. Off. Rpt.* 247. 1854.

Grown in England. Canes dwarfish, pale green, with numerous small prickles; foliage flat and pointed; fruit large, roundish, pale yellow, pleasantly acid to rich when fully ripe.

White Mountain. 1. *Mass. Sta. Bul.* **10**:11. 1890.

On trial at the Massachusetts Station in 1890. Not very hardy, productive, small, soft; inferior quality; early.

White Queen. 1. *Am. Pom. Soc. Rpt.* 286. 1921. 2. Hunt *Cat.* 1921.

Introduced by William M. Hunt & Company, New York City, in 1920. Originated with Jonathan Thorne, Black Rock, Connecticut. Plant described as very vigorous, with large canes and heavy foliage; fruit large, creamy white, very soft and of fine flavor; season August until November.

Williams. 1. Lovett *Cat.* 11. 1918.

Found in the wild by Louis Paddock, Antioch, Illinois. Introduced in 1918 by J. T. Lovett, Little Silver, New Jersey. Plants described as stocky, hardy, and productive; fruit large, round, with large drupelets, deep red, rich and sprightly.

Wilmot. 1. *S. Dak. Sta. Bul.* **104**:293. 1907.

A wild red raspberry from Wilmot, Roberts County, South Dakota; used by Prof. N. E. Hansen of the South Dakota Station in breeding hardy varieties.

Winant. 1. *N. J. Hort. Soc. Rpt.* 13. 1877.

Introduced by Frank Ford & Son, Ravenna, Ohio, who thought that it came from New Jersey. Said to resemble Thwack, but the canes are more vigorous and have a bluish tint. Fruit large, bright red, very firm; good; early.

Woodward. 1. *Horticulturist* 8:187. 1857.

Originated by Dr. William Brincklé of Philadelphia previous to 1850. Described as the smallest of his seedlings, though larger than the ordinary wild raspberry; reddish prickles; fruit round to sometimes roundish ovate, dark red; early.

Worthy. 1. Hale *Cat.* 15. 1898.

Introduced in 1898 by J. H. Hale, South Glastonbury, Connecticut. Said by him to be a seedling of Turner by Philadelphia, produced by a Connecticut small fruit grower. As grown here the fruit is unattractive in appearance and of inferior quality. Plants dwarfish, hardy, productive; canes slender, moderately numerous; foliage small, dark green; fruit of medium size, roundish, dull unattractive red, firm, rather tart; fair; early.

Yellow Antwerp. 1. Sickler *Teutsche Obst.* 15:193. 1802. 2. Prince *Pom. Man.* 2:165. 1832.

White Antwerp. 3. McMahon *Am. Gard. Cal.* 517. 1806.

This old yellow-fruited sort, long a standard of comparison, was first mentioned by Sickler in 1802, and in this country by McMahon in 1806. It was the only yellow sort much cultivated until about 1860 when Orange displaced it. In Europe it is still offered by nurserymen. Winter protection was required, although it was considered hardier than the Red Antwerp. It was recommended for general cultivation in 1850 by the Second Congress of Fruit Growers and by the American Pomological Society until 1869 when it was removed from its list. Plants vigorous, not hardy, productive; canes strong, light yellow, with numerous long, slender, white prickles, some canes with very few prickles; foliage pale green; fruit large, conic, pale yellow, rather soft, juicy, sweet; good; midseason.

Yellow Canada. *Occidentalis* x *Idaeus.* 1. *Am. Jour. Hort.* 6:137, fig. 1869.

White Canada. 2. Downing *Fr. Trees Am.* 973. 1869.

Arnold's Yellow. 3. *Mich. Sta. Bul.* 111:10. 1894.

Originated by Charles Arnold, Paris, Ontario. Said by him to be a "grandchild of the old native White Cap, or Bramble, fertilized with pollen of White Four Seasons and Brincklé's Orange." Canes vigorous, upright, brownish yellow, with numerous stout, white prickles; fruit large, obtuse-conic, pale yellow, soft, of inferior flavor; early.

Yellow Chili. 1. Fuller *Sm. Fr. Cult.* 165. 1867.

Described by Fuller as an old French sort of little value, imported by him about 1857. Canes strong, branching, with long, slender, white prickles; fruit large, conic, pale yellow, slightly tinged with orange, very soft, juicy, sweet.

Zetler. 1. *Ont. Fr. Exp. Sta. Rpt.* 49. 1899.

A local variety on trial at the Lake Huron farm of the fruit experiment stations of Ontario, Canada, in 1899. Plants vigorous, hardy, and moderately productive; fruit above medium in size, light red, soft; early.

CHAPTER IV

VARIETIES OF BLACK RASPBERRIES

Ada. 1. *Ohio Hort. Soc. Rpt.* 65. 1886–87. 2. *N. Y. Sta. Bul.* 63:672. 1893.

A chance seedling which originated with Henry Young, Ada, Ohio, about 1882; supposed by him to be a cross between Doolittle and McCormick. It was introduced in 1889 by T. F. Longenecker, Dayton, Ohio. As grown at this Station the plants are very vigorous but lack productivity. Fruit small, firm, sweet; fair; late.

Adams Black Perfection. 1. *Am. Pom. Soc. Rpt.* 160. 1920.

Introduced in 1915 by Brown Brothers Company, Brown's Nurseries, Welland County, Ontario. Described as vigorous, very hardy and productive; fruit large, firm, handsome black, rich; earlier than Gregg.

Ak-Sar-Ben. 1. Card *Bush-Fr.* 161. 1898.

A chance seedling discovered by Ex-Gov. R. W. Furnas, Brownville, Nebraska. Plants described as hardy and very productive; fruit large, good color; quality fair.

Alaska. 1. *Wis. Nur. Cat.* 1921.

Received in a lot of strawberry plants from Iowa by the Wisconsin Nursery Company, Union Grove, Wisconsin, who introduced it as a hardy sort in 1921. As grown at this Station, the fruit is small, many berries are undeveloped and the flavor is inferior. Plants dwarfish, not vigorous, drooping, moderately productive; canes rather slender, greenish, tinged with reddish brown, heavily glaucous; prickles medium in number, strong; fruit small, roundish oblate, of medium coherence, separates readily from the torus, glossy black, juicy, firm, very sprightly; fair; midseason.

American Black. 1. McMahon *Am. Gard. Cal.* 518. 1806. 2. Prince *Treat. Hort.* 40. 1828. 3. Downing *Fr. Trees Am.* 515. 1845.

This is the common black raspberry, which grows everywhere in the North Atlantic States in fields and along fences, and was frequently cultivated in gardens before improved sorts made their appearance. McMahon mentions it in 1806 and in 1845 Downing said that it was everywhere known. The American Pomological Society placed it in the fruit catalog of the Society in 1862 and it was in succeeding catalogs until 1881 when Doolittle took its place. See the description of *R. occidentalis*.

American Everbearing. 1. *Ann. Hort.* 198. 1891. 2. *N. Y. Sta. Bul.* 63:672. 1893.

Introduced in 1890 by the Cleveland Nursery Company, Rio Vista, Virginia, who obtained it from a Mr. Hatfield, Wayne County, Indiana, near whose farm it originated. It was introduced as an autumn-fruiting blackcap; as grown at this Station it produced considerable fruit in late August and through September. Fruit medium in size, firm, juicy, nearly sweet; midseason; autumn-fruiting.

American White. 1. Prince *Treat. Hort.* 40. 1828. 2. *N. Y. Sta. Bul.* 63:690. 1893.

White Cap. 3. *Am. Hort. Ann.* 103. 1867.

White-fruited forms of *R. occidentalis* occur in the wild, which from time to time are introduced into cultivation, although they have never become popular. The fruit is usually a pale yellow, but varies from white to a golden color.

Arctic. 1. *N. Y. Sta. Bul.* **63**:673. 1893.

Received at this Station in 1892 from an unknown donor. Fruit medium in size, firm, juicy, sweet; midseason.

Babbit. 1. *U. S. D. A. Pom. Rpt.* 265. 1892.

A chance seedling which originated in 1883 in the nursery of a Mr. Babbit, College Springs, Iowa. In 1892 W. R. Laughlin of that place sent it to the United States Department of Agriculture. Plants strong, vigorous, hardy and productive; fruit of medium size, roundish oblate, with numerous small drupelets, dull black, without bloom, moderately firm, juicy, subacid; good; long-ripening season.

Beebe. 1. *Mich. Sta. Bul.* **55**:22. 1889.

Beebe Golden. 2. *Ohio Hort. Soc. Rpt.* 65. 1886–87.

This yellow blackcap was introduced in 1886 by James Beebe, Cassadaga, New York. Plants of medium vigor, hardy, productive; fruit small, round, firm; color orange, becoming unattractive dirty brown; fair; early.

Belle. 1. *Rural N. Y.* **45**:461. 1886.

Received at the trial grounds of the *Rural New-Yorker* in 1885, from L. C. Carlow, Batavia, Illinois. Described as one of the most hardy, vigorous and productive blackcaps on trial; the earliest to ripen. Fruit as large as Gregg, firm; of inferior flavor.

Belmont. 1. *W. N. Y. Hort. Soc. Rpt.* 118. 1880.

Raised by John Scobs, Barnesville, Ohio, and introduced about 1879. Fruit larger, a week earlier and plant more productive than McCormick.

Beyer. 1. *Rural N. Y.* **45**:914. 1906. 2. *N. Y. Sta. Bul.* **278**:128. 1906.

Originated by Hugo Beyer, New London, Iowa, prior to 1904 when plants were sent out. Plants moderately vigorous, with light green foliage; fruit medium in size, firm, not very juicy, seedy, acid; good; autumn-fruiting.

Bishop. 1. *Kan. Hort. Soc. Rpt.* 82. 1898. 2. *N. Y. Sta. Bul.* **278**:128. 1906.

Originated prior to 1898 by L. Bishop, Parker, Kansas. As grown at this Station, the plants are vigorous, hardy, unproductive; fruit medium in size, firm, dull, unattractive black, covered with bloom, seedy, moderately juicy; fair.

Black Pearl. 1. *Ill. Hort. Soc. Rpt.* 213. 1912. 2. *N. Y. Sta. Bul.* **403**:218. 1915. 3. Hedrick *Cyc. Hardy Fr.* 281, fig. 245. 1922.

In 1914 Black Pearl was named as the most promising of the new varieties of black raspberries on the grounds of this Station. Since that time it has become one of the standard fruits of its kind. The plants are characterized by their small, dark green leaves. The green betokens vigor and healthiness in spite of the small size of the leaves. The plants are as hardy and productive as those of any other black raspberry; the berries are large, glossy black, very inviting in appearance, of good quality, and fall short only in being a little too variable in size. The crop matures a week or more earlier than the well-known

BLACK PEARL

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Gregg, but unfortunately has a somewhat shorter season. Black Pearl is about the best raspberry for cold climates, and, on the other hand, stands hot, dry summers as well as any other sort. Black Pearl was found as a chance seedling in a plantation of Kansas in 1905 by Herman Krumrei, St. Joseph, Missouri. The variety was introduced by Holsinger Brothers, Rosedale, Kansas, in 1907.

Plants above medium height, vigorous, upright-spreading, hardy, very productive, variable in health, susceptible to anthracnose; canes very stocky, dull brownish red, heavily glaucous; prickles numerous, slender, strong; leaflets usually 3, broadly lanceolate, small, luxuriant dark green, rugose, with finely serrate margins; petiole rather long, of medium thickness, glabrous, prickly. Flowers early; pedicels very short, pubescent. Fruit early, ships well, appears to withstand drouth exceptionally well; large but variable, hemispherical, glossy glack, adheres fairly well to the torus; drupelets rather small, cohering strongly so that the berries do not crumble; flesh firm, juicy, pleasantly sprightly, rich quality very good.

Bonanza. 1. *Mo. Hort. Soc. Rpt.* 141. 1890.

Originated in 1888 on the grounds of W. C. Freeman, Greene County, Missouri. Fruit described as juicy and with a peculiar aromatic flavor; a good keeper.

Bronze Queen. 1. *Mo. Hort. Soc. Rpt.* 182. 1886.

Mentioned at a meeting of the Missouri Horticultural Society as being cultivated by a Mr. Holman. Plants very vigorous, hardy, with immense canes rooting at the tips; fruit a peculiar bronze color, sweet; very good.

Burkhart. 1. *Wash. Sta. Bul.* **87**:28. 1909.

A chance seedling found about 1901 on the farm of Rev. F. Walden, Zillah, Washington; introduced by M. E. Burkhart, by whom it was named. It is supposed to be a seedling of Gregg which it resembles. Plants very vigorous, healthy, drouth resistant and very productive; foliage large, dark green; fruit large, pure black, firm, and of excellent quality.

Burns. 1. *Horticulturist* **28**:352. 1872.

Originated with A. M. Burns, Manhattan, Kansas, prior to 1872. Plants described as drouth resistant, earlier and more productive than Doolittle; fruit medium in size and quality.

Calyx. 1. *Ohio Sta. Bul.* **146**:38. 1903.

On trial at the Ohio Station. Described as a satisfactory sort; similar to Gregg in size, color, and season of fruit.

Canada. 1. Downing *Fr. Trees Am.* 964. 1869.

Introduced into Ohio from Canada prior to 1869 by a gentleman who found plants in cultivation along the Canadian shore of Lake Erie. Similar to Doolittle but later.

Carman. 1. *Rural N. Y.* **45**:621, fig. 360. 1886. 2. *N. Y. Sta. Bul.* **63**:673. 1893.

A chance seedling found in a fence corner about 1874, by A. H. Sherwood, Southport, Connecticut. It was acquired by G. H. & J. H. Hale, South Glastonbury, Connecticut, who named it Carman in honor of the editor of the *Rural New-Yorker*, and introduced it about 1886. When tested at this Station it was considered one of the best early sorts.

Plants vigorous, hardy and productive; fruit medium in size, firm, mildly subacid, moderately juicy; good; very early.

Centennial. 1. *Gard. Mon.* **23**:304. 1881.

According to S. Miller in the report of the Missouri Horticultural Society for 1884, two sorts with this name originated in Missouri. George Husmann found one near Hermann, about 1860 while a Mr. Grayhill, Springfield, Missouri, found another near Carthage. The latter seems to have been the one which was generally disseminated. It was sent out by Samuel Miller, Bluffton, Missouri, about 1880. Fruit large, conic, without bloom, sweet, highly flavored; early.

Champion. 1. *Mich. Sta. Bul.* **111**:14. 1894.

A small, early sort found in the wild in Clarke County, Ohio. Sent out a few years prior to 1894 by Frank Murphy, Donnelsville, Ohio.

Chapman. 1. *Ohio Hort. Soc. Rpt.* 44. 1871.

Originated as a chance seedling with a Mr. Chapman, near Cincinnati, prior to 1863. It was brought to attention by a Mr. Bailey of Ross County. Fruit larger, brighter, and blacker than McCormick. By some it was considered identical with Ohio.

Chesterfield. 1. *Rural N. Y.* **43**:18. 1884.

A chance seedling found in Chesterfield County, Virginia. Plant heat and drouth resistant with fruit very large, very dark, medium juicy, aromatic; good.

Clark. 1. *Mich. Sta. Bul.* **169**:153. 1899.

On trial at the Michigan Station in 1898. Plants moderately productive, subject to drouth injury; fruit round, black, firm, not juicy, sprightly, rich; early midseason.

Coloma. 1. *Mich. Sta. Bul.* **206**:57. 1903.

Sent to the Michigan Station about 1902 by John Wenslick, Coloma, Michigan. Plants of moderate vigor, thornless; fruit medium in size, jet black; good; midseason.

Conrath. 1. *Ann. Hort.* 198. 1891. 2. *Rural N. Y.* **54**:164. 1895.

A chance seedling, discovered in 1886, near a patch of Gregg by C. H. Woodruff, Ann Arbor, Michigan. Mr. Woodruff worked up a stock of plants which he sold to Conrath Brothers of Ann Arbor, who named and introduced it in 1894. In some sections it has value as an early sort. It was recommended in the American Pomological Society fruit catalog in 1901 and 1909. Plants vigorous, healthy, drouth resistant, productive; fruit large, firm, black, parting readily; good; early.

Corinth. 1. *Mass. Sta. Bul.* **22**:12. 1893.

On trial at the Massachusetts Station in 1893. Plants productive; fruit medium in size, firmness, and quality; late.

Cottier Everbearing. 1. Card *Bush-Fr.* 163. 1898.

Originated with M. T. Thompson, Rio Vista, Virginia. Autumn-fruiting.

Crawford. 1. *Mass. Sta. Bul.* **7**:4. 1890.

On trial at the Massachusetts Station in 1890. Plants vigorous, hardy, unproductive; fruit of medium size; fair; early midseason.

Cream. 1. *Mich. Sta. Bul.* **111**:16. 1894.

A yellowcap mentioned by William Parry, Parry, New Jersey, in 1870.

Cromwell. 1. *Mich. Sta. Bul.* **67**:14. 1890.

Butler. 2. *Rural N. Y.* **47**:678. 1888.

Received without name at the Michigan Station in 1887 and again in 1890 for trial, from G. S. Butler, Cromwell, Connecticut. It was called Butler until introduced in 1890 by G. H. & J. H. Hale, South Glastonbury, Connecticut, as Cromwell. It was of the type of Souhegan. Plants moderately vigorous; fruit of medium size, round, black; fair; early.

Cumberland. 1. *Rural N. Y.* **55**:624. 1896. 2. *Can. Hort.* **23**:357, fig. 1892. 1900. 3. Hedrick *Cyc. Hardy Fr.* 281. 1922.

For many years Cumberland was the most widely and most commonly grown black raspberry. The assets which gave it high standing were productiveness and hardiness of plant, and large size and high quality of fruit. The fruits are especially firm, and therefore in favor with shippers. The berries hold their size well until the close of the season. It is now losing in popularity because of susceptibility to anthracnose, the streak disease, and rosette. Cumberland originated with David Miller, Camp Hill, Pennsylvania, and after having been grown locally for some years was introduced in 1896. In 1899 the American Pomological Society added Cumberland to its fruit catalog list. The variety was supposed to be a seedling of Gregg but this origin is doubtful.

Plants tall, vigorous, upright-spreading, unusually hardy, very productive, susceptible to anthracnose and rosette, contract streak disease rapidly; canes smooth, greenish changing to light reddish brown, heavily glaucous; prickles large, long, thick, strong, very numerous, greenish; leaflets 3 to 5, of medium size, broadly ovate, rugose, with dentate margins; petiole medium in length and thickness, prickly, glabrous, glaucous. Flowers early; pedicels prickly, pubescent; calyx smooth. Fruit early midseason, ships well, usually holds up in size to the close of the season; large, conical, attractive black, clings well to the short, small, roundish torus, although the berry is released readily, heavily glaucous; drupelets large, round, with strong coherence so that the berries do not crumble; flesh juicy, firm, sweet, rich; quality very good.

Daily Bearing. 1. *Ohio Hort. Soc. Rpt.* 51. 1866.

Griggs Daily Bearing. 2. *Ohio Hort. Soc. Rpt.* 42. 1867.

Originated about 1860 from seed of Ohio Everbearing by a Mr. Griggs, Perry County, Ohio. Plants more productive and fruit larger and of better quality than the Ohio Everbearing.

Davis. 1. *Mich. Sta. Bul.* **111**:19. 1894.

Found on the banks of the New River in North Carolina about 1884 by a woman named Davis; brought to notice by L. P. Hodges, Sands, North Carolina. It is a yellowcap, earlier than Golden Queen, and satisfactory near the place of its origin.

Davison.

Davison Thornless. 1. Fuller *Sm. Fr. Cult.* 143. 1867. 2. *Am. Pom. Soc. Rpt.* 168. 1867.

Sinton. 3. *Rec. Hort.* **2**:55. 1868.

A thornless variety which originated about 1859 on the grounds of Mrs. Mercy Davison, Gowanda, New York; similar to Doolittle, but a few days earlier. It was placed in the catalog of the American Pomological Society in 1873 and remained there until 1883. Canes strong, stocky, without prickles; fruit large, sweet; early.

Diamond. **1.** *Mich. Sta. Bul.* **142**:171. 1897. **2.** Card *Bush-Fr.* 152. **1917.** **3.** Hedrick *Cyc. Hardy Fr.* 281. 1922.

Black Diamond. **4.** *Rural N. Y.* **57**:123. 1898.

Diamond was much grown in western New York for several years because of the beauty and high quality of the fruit. It turns out, however, that it is very capricious as to soils and climate, and is suitable to but few localities. Moreover, the berries are small and variable in size. The plants are quickly injured by drouth and are very susceptible to anthracnose. The variety was never much grown out of western New York, and seems now well on the way to oblivion. According to information received from C. W. Stuart & Company, Newark, New York, who introduced this variety about thirty years ago, the first bush was found by L. J. Bryant, Newark, about 1888 in an old peach orchard. While the parentage is unknown, Mr. Bryant believed that it might be a seedling of Gregg and Ohio.

Plants tall, vigorous, spreading, nearly hardy, productive, severely attacked by anthracnose; canes stocky, green changing to light reddish brown, heavily glaucous; prickles of medium size and thickness, strong, medium in number, greenish; leaflets usually 3, oval, attractive dark green, rather small, rugose, somewhat pubescent, with prickly midribs and serrate margins; petiole long, of medium thickness, glabrous. Flowers midseason; pedicels prickly, pubescent; calyx smooth. Fruit late midseason; variable in size, broadly hemispherical, irregular in shape, black with a tinge of red until fully ripe, adheres fairly well to the torus which is roughish and rounded; drupelets of medium size and coherence; flesh juicy, firm, pleasantly sprightly; quality fair to good.

Doolittle. **1.** *Am. Pom. Soc. Rpt.* 84. 1858. **2.** *Gard. Mon.* **3**:75. 1861. **3.** Bailey *Ev. Nat. Fruits.* 282. 1898.

Joslyn. **4.** *Horticulturist* **16**:381. 1861.

American Black. **5.** *Am. Pom. Soc. Cat.* 96. 1862.

American Improved. **6.** Fuller *Sm. Fr. Cult.* 142. 1867.

It is doubtful if Doolittle can now be found under cultivation, and this rarity makes a technical description unnecessary. Neither is it necessary to give it a general discussion, since in the account of the domestication of the black raspberry it came in for full discussion as the first black raspberry to acquire prominence as a commercial fruit. Once the most popular of all raspberries, it was superseded after several decades of culture by Souhegan, which, in its turn, gave way to Gregg, which is now succumbing in competition with Black Pearl and Plum Farmer. A resumé of its history, as given on page 14 follows: This variety was found growing wild by Leander Joslyn, Phelps, New York. It was introduced by H. H. Doolittle, Oaks Corners, New York, about 1850. The variety was known under various names for many years. The American Pomological Society first used the name " Doolittle," but it had previously appeared in the Society's catalog under the name

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"American Black," being changed to Doolittle in 1891. The original American Black was quite distinct from Doolittle.

Doomore. 1. *Mich. Sta. Bul.* **55**:22. 1889.

A seedling found in 1884 near plants of Doolittle by Gustus Swabley, Tiffin, Ohio, and sent to the Ohio Station for trial. The first plants sent out were mixed with seedlings of Gregg but Mr. Swabley later grew the variety pure. Plants tall, erect, productive; canes deep blue; fruit medium in size, without bloom; early.

Duncan. 1. *Am. Pom. Soc. Rpt.* 75. 1875.

Kentucky. 2. *Ia. Hort. Soc. Rpt.* 417. 1882.

Mentioned at the meeting of the American Pomological Society in 1875 as a new sort from Bullitt County, Kentucky. Very similar to Gregg; fruit slightly earlier and turning a pinkish yellow before ripe.

Earhart. 1. *N. Y. Sta. Bul.* **63**:673. 1893.

Earhart Everbearing. 2. *Rural N. Y.* **44**:789, fig. 497. 1885.

Found about 1870 in a grove near Mason, Illinois, late in the summer, loaded with ripe fruit. Mr. Earhart, the finder, removed it to his garden, cultivated it for a number of years, when it attracted the attention of G. H. & J. H. Hale, South Glastonbury, Connecticut, who introduced it in 1887. It was considered one of the best of the autumn-fruiting sorts, bearing a light summer crop and a fall crop on the new canes of the current year. The American Pomological Society placed Earhart in its catalog in 1889; it remained in the last catalog in 1909. Plants vigorous, healthy, sometimes not hardy, unproductive; prickles stout; foliage rugose; fruit small, dull, unattractive black, firm, not juicy, crumbling, sweet; good; early.

Early Prolific. 1. *Mo. Hort. Soc. Rpt.* 79. 1883.

Described in 1883 by Dr. J. Stayman, Leavenworth, Kansas, as the best early blackcap he had seen. A very strong grower, very hardy, healthy, very productive, nearly thornless; fruit as large as that of Souhegan; of best quality; early.

Ebon Beauty. 1. *Ann. Hort.* 198. 1891.

Found by the roadside, in a woodland, in 1887, by F. L. Piers, Barden, Indiana, who named and propagated it. As grown at the Indiana Station it was inferior to Gregg in every respect, ripening with that variety, but having a shorter season.

Ebony. 1. *N. Y. Sta. Bul.* **63**:673. 1893.

A chance seedling which originated on the farm of W. W. Farnsworth, Waterville, Ohio, about 1885; sent out about 1890. Plants vigorous and productive; fruit medium to large, firm, very seedy, moderately juicy, sweet; good; midseason.

Edmunds. 1. *Mich. Sta. Bul.* **171**:286. 1899.

On trial at the Michigan Station in 1899. Plants vigorous, productive; fruit above medium in size, very irregular in shape, jet black, dry, firm, very crumbly; good; early.

Elsie. 1. Fuller *Sm. Fr. Cult.* 143. 1867.

Raised from seed of Surprise by Samuel Miller, Bluffton, Missouri, prior to 1867; very similar to its parent. Plants productive; fruit large; good.

Emperor. 1. *Mich. Sta. Bul.* 24. 1894.

A colored plate of this variety appeared in the catalog of A. M. Purdy, Palmyra, New York, in 1871.

Eureka. 1. *Ohio Hort. Soc. Rpt.* 155. 1893. 2. *N. Y. Sta. Bul.* **278**:128. 1906.

Found growing wild about 1886 on the farm of Jacob Smith, Miami County, Ohio, by J. C. Kester, New Carlisle, Ohio. It was introduced in 1890 by D. M. Mohler, New Paris, Ohio. In its day, this was one of the best early blackcaps, producing good crops of large, attractive, high quality fruit. The American Pomological Society placed Eureka in its catalog in 1896, where it remained in 1909. Plants tall, moderately vigorous, fairly hardy, very productive; canes stocky, with heavy bloom; foliage dark green; fruit large, roundish, attractive black, moderately juicy, firm, mild, sweet; good; early.

Everbearing (I). 1. *Ind. Sta. Bul.* **48**:10. 1894.

On trial at the Indiana Station in 1894. Plants vigorous, hardy and productive; fruit medium in size, round, black; fair; early.

Everbearing (II). 1. *Am. Pom. Soc. Rpt.* 284. 1921.

Offered for sale by the F. W. Brow Nursery Company, Rose Hill, New York, but discarded as not coming up to expectations. Plants upright, vigorous, productive; fruits from June until frost.

Everlasting. 1. *Rural N. Y.* **42**:589. 1883.

Received by the *Rural New-Yorker* in 1882 from Lawrence County, Pennsylvania, with the statement that it was found in the wild some years previously in New Castle County of that state. Roots from tips sparingly. Fruit the size of Gregg; good; autumn-fruiting.

Everyday. 1. *Mich. Sta. Bul.* **111**:25. 1894.

Reported by Dr. J. A. Warder in 1870 as being thought identical with Ohio Everbearing, but with him it was a more continuous bearer, fruiting almost constantly until frost. Fruit large, grayish black, moderately juicy; early.

Fadely. 1. *Penn. Sta. Bul.* **32**:11. 1894.

Received at the Pennsylvania Station in 1893 from Joshua Fadely, Sassafras, West Virginia. Plants vigorous, unproductive; berries crumble badly.

Fairmount.

Received at this Station in 1905 for trial from Charles Mills, Camillus, New York. Plants moderately vigorous; fruit large, black with considerable bloom; drupelets small; good.

Fancy. 1. *Rec. Hort.* 45. 1866.

A seedling of Surprise, received by A. S. Fuller, about 1865, from Samuel Miller, Avon, Pennsylvania.

Farnsworth. 1. *Mich. Sta. Bul.* **106**:134. 1894.

Received for trial at the Michigan Station in 1892 from W. W. Farnsworth, Waterville, Ohio. While on test it was considered a promising sort for home and market purposes.

Plants vigorous, healthy and productive; fruit above medium in size, borne on long stout fruit-stalks, firm, moderately juicy; good; early.

Fay. 1. *Cult. & Count. Gent.* 39:550. 1874.

Fay Thornless. 2. Gregg *Fr. Cult.* 134. 1877.

A. S. Fuller is quoted in the *Rural New-Yorker* as saying that Fay ranks first as an early blackcap; the fruit is of good size, firm, black, with very little bloom, does not become dull in rainy weather. The plants are thornless.

Ferndale. 1. *U. S. D. A. Pom. Rpt.* 293. 1893.

A chance seedling found along the Delaware River prior to 1890 by W. B. K. Johnson, Allentown, Pennsylvania. Plants very vigorous, fairly hardy, productive; prickles few, large; fruit large to very large, round-oblate, regular, crimson black with heavy bloom; drupelets large, flattened, coarse, firm, moderately juicy, sweet, aromatic; very good; earlier than Gregg.

Florence. 1. *Cult. & Count. Gent.* 43:151. 1878.

Described as a yellowcap introduced from New Jersey about 1875. Plants hardy, vigorous, productive; prickles white, strong; fruit of medium size, round, orange-yellow, firm, seedy, juicy, sprightly; good.

Freseman. 1. *Am. Pom. Soc. Rpt.* 284. 1921.

A chance seedling which originated about 1899 with A. A. Freseman, Lennox, South Dakota, by whom it was introduced about 1904. Plants hardy, productive; fruit large, shiny, excellent.

Galloway. 1. *Am. Pom. Soc. Rpt.* 161. 1920.

Introduced by Galloway Brothers, Waterloo, Iowa. Plants vigorous, stocky, very productive; fruit very large, firm, black.

Garden. 1. *Rec. Hort.* 2:57. 1868.

Originated with H. H. Doolittle, Oaks Corners, New York, by whom it was sent out in 1867. A good cooking sort, lighter in color and more acid than other sorts.

Gardiner. 1. Fuller *Sm. Fr. Cult.* 147. 1867.

Received by A. S. Fuller about 1866 from S. Miller. Described as a new variety of peculiar habit, the leaves on the young canes in the spring being dark purple and very ornamental. Canes strong, very stocky; spines numerous and strong; fruit very large, covered with dense bloom; good.

Gault. 1. *U. S. D. A. Pom. Rpt.* 27. 1894. 2. *Am. Gard.* 15:491, Pl. 1894. 3. *N. Y. Sta. Bul.* 278:116. 1906.

A chance seedling found by the roadside a few years prior to 1892 by W. C. Gault, Ruggles, Ohio; introduced in 1892 by Storrs & Harrison, Painesville, Ohio. As grown at this Station it was inferior to standard sorts; the plants were subject to drouth injury and the fruits crumbled. Plants tall, very vigorous, upright, fairly hardy, and productive; canes stocky; prickles medium in number, strong; fruit medium in size, roundish; drupelets weakly coherent, dull black, coarse, firm, not juicy, seedy, sweet; fair; season early, very long.

General Negley. 1. *Gard. Mon.* 12:278. 1870.

Raised by a General Negley, several years previous to 1871. Exhibited at a meeting of the Ontario Fruit Growers Association in 1870 as a large perpetual-bearing blackcap.

Giant.

Received at this Station in 1904 from J. C. Studt, Solon, Iowa. While on test it was a promising early sort. Plants vigorous, spreading, hardy and productive; canes stocky, covered with heavy gray bloom; prickles numerous, large, long; fruit of medium size, attractive black, with considerable bloom, firm, sweet; good; early.

Gibraltar. 1. King Bros. *Cat.* 35. 1916.

Originated about 1902, with N. E. Mallory, Blenheim, Ontario, by whom it was introduced in 1908. Plants stocky, vigorous, hardy and productive; prickles medium in number and size, the same color as the canes; fruit large, roundish, black with considerable bloom; drupelets above medium in size, strongly coherent, firm, sprightly; good.

Gold Dollar. 1. Townsend *Cat.* 20. 1922.

Found growing in a graveyard on a farm in Wicomico County, Maryland, several years previous to 1922. Introduced in 1922 by E. W. Townsend & Sons, Salisbury, Maryland. Described as propagating from tips; fruit golden yellow in color, more productive, larger, earlier and sweeter than Golden Queen.

Golden Cap. 1. *Am. Pom. Soc. Cat.* 36. 1873.

Supposed to be a seedling of the Old White Cap; originated about 1860 in Cedar County, Iowa. It was in the catalog of the American Pomological Society from 1873 until 1883. Plants hardy and productive; fruit medium in size, round, yellow; good; midseason.

Golden Thornless. 1. *Cult. & Count. Gent.* 34:136. 1869. 2. *N. Y. Sta. Bul.* 63:691. 1893.

Brought from Minnesota prior to 1869 by Purdy & Johnson, Palmyra, New York. Placed in the catalog of the American Pomological Society in 1873, and removed in 1883. Plants vigorous, hardy, very productive; canes whitish, with slender branches, nearly free from prickles; fruit of medium size, orange, becoming darker when fully ripe, moderately firm, inclined to crumble, juicy; good.

Green. 1. *Mich. Sta. Bul.* 111:28. 1894.

Discovered about 1890 on the grounds of Green's Nursery Company, Rochester, New York; introduced in 1894. As grown at the Michigan Station the fruit was small, although the plants were fairly productive; fruit round, black; good; midseason.

Gregg. 1. *Am. Hort. Ann.* 87. 1871. 2. Roe *Suc. Sm. Fr.* 233. 1881. 3. *Mich. Sta. Bul.* 111:278. 1894. 4. Card *Bush-Fr.* 155. 1917.

Paradoxically enough one may name more good qualities for Gregg and at the same time more defects than in almost any other black raspberry. The defects are in the plants; the good qualities, in the fruit. The berries are about all that could be desired,— large, handsome and of the very best quality; the fruit is about the best of all black raspberries for evaporating, a smaller quantity of fresh fruit being required for a pound of dried fruit

GREGG

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than of any other variety. The serious faults which mar the plants are: They are susceptible to rosette, anthracnose and streak disease; they winter kill badly where several other varieties are perfectly hardy; they are adapted to comparatively few soils; they make a late growth which sometimes does not mature in short seasons; and they require a rich soil and high cultivation to induce even average productivity. The parent plant of this variety was found growing wild in a ravine on the farm of R. & P. Gregg, Ohio County, Indiana, in 1866. The American Pomological Society added Gregg to its fruit catalog list in 1879.

Plants tall, vigorous, upright-spreading, ripen their wood late in the fall, somewhat tender to cold, variable in yield, not very healthy, susceptible to rosette, anthracnose and the streak disease; canes medium to thick, numerous, dull brown, variable in amount of bloom; prickles of average thickness, strong, rather few, brownish; leaflets quite large, 3–5, usually 3, with the lower two often lobed, oval, thick, attractive dark green, rugose, with serrate margins; petiole medium in length and thickness, slightly prickly, glabrous. Flowers late, numerous, in clusters near the tips of the branches; pedicels short, very prickly; calyx small, pubescent. Fruit late, quite susceptible to injury by unfavorable weather conditions; large to very large, broadly hemispherical, black with tinge of purple and with heavy bloom; drupelets large, round, usually cohering strongly, yet crumbling on some soils; flesh juicy, firm, rich and highly flavored but variable; quality usually good.

Hale Early. 1. *N. Y. Sta. Rpt.* 278. 1890.

Sent out for trial in 1888 by G. H. & J. H. Hale, South Glastonbury, Connecticut, but proving inferior to other sorts was never introduced. Plants vigorous, unproductive; fruit of medium size, firm, seedy, sweet; very good; early midseason.

Hamilton. 1. *Horticulturist* **24**:274. 1869.

Discovered in the wild in 1867 by a Mr. Hamilton, Bartlett Station, Tennessee, who brought it under cultivation. Fruit large, sweet.

Hannibal. 1. *U. S. D. A. Pom. Rpt.* 265, Pl. IX. 1892.

Extra Late. 2. *Ibid.* 394. 1891.

Sent to the Pomologist of the United States Department of Agriculture in 1891 by W. J. Bradt, North Hannibal, New York, under the name Extra Late, which was changed to Hannibal at the suggestion of H. E. Van Deman, pomologist. Described by him as vigorous, productive; fruit large, roundish oblate; drupelets numerous, regular, black, without bloom, excellent; several days later than Gregg.

Hanover Pink.

A chance seedling found in a fence corner in 1919 by Samuel Higgs, Forestville, New York, who propagated it, and sent plants to this Station for trial in 1921. This variety has value only as a curiosity, the fruits crumble, are not high in quality and are an unattractive amber color.

Harrison. 1. *Am. Pom. Soc. Rpt.* 100. 1891.

A chance seedling found about 1874 by H. S. Harris, Whig Lane, Salem County, New Jersey. In 1891 it was exhibited at a meeting of the American Pomological Society by

R. G. Chase & Company, Geneva, New York. Fruit medium to large, rather dry, firm, black, with less bloom than Gregg; good; autumn-fruiting.

Haskell Yellow. 1. *Mich. Sta. Bul.* 111:31. 1894.

Taken from Massachusetts to Illinois, about 1836 by a Dr. Haskell. Favorable reports regarding it appeared a few years later.

Hawkeye. 1. *Ia. Hort. Soc. Rpt.* 535. 1884.

A variety cultivated in Iowa in 1884; said to have come from Indiana. Fruits earlier, as large and as firm as those of Gregg.

Hawkins Orange. 1. *Cult. & Count. Gent.* 41:470. 1876.

Exhibited at the Centennial Exposition in 1876 and described by W. L. Shaffer, chairman of the Pomological Committee, as an amber-colored blackcap not superior to existing kinds.

Hilborn. 1. *Ont. Fr. Gr Assoc. Rpt.* 18. 1884. 2. *N. Y. Sta. Bul.* 63:674. 1893.

A chance seedling which came up in an old plantation of black raspberries on the farm of W. W. Hilborn, Leamington, Ontario, about 1878; introduced in 1886. The variety has considerable merit as a market sort, producing good crops of fairly large, firm, attractive, finely-flavored fruit. The American Pomological Society placed Hilborn in its list of recommended varieties in 1889; it remained in the last list in 1909. Plants vigorous, hardy, and productive; fruit medium to large, firm, juicy, sweet; very good; early.

Hixon. 1. *Kan. Hort. Soc. Rpt.* 290. 1886.

Recommended in the fruit list of the Kansas Horticultural Society in 1886 for culture in the northern district of that State.

Hoag. 1. Card *Bush-Fr.* 166. 1898.

Harkness. 2. *Minn. Hort. Soc. Rpt.* 28. 1876.

Originated with Charles R. Hoag, Kasson, Minnesota. It is said to resemble Gregg, but is more hardy in Minnesota.

Honeysweet. 1. *Am. Pom. Soc. Rpt.* 161. 1920. 2. Hedrick *Cyc. Hardy Fr.* 282. 1922.

As the name suggests, this variety is characterized by its sweetness,— a rich, honey-like, distinct flavor, made more delectable by an enticing aroma. The berries are of large size, glossy black, very handsome, so that, with the high quality they are nearly perfect in fruit characters. The crop ripens in early midseason and can be left on the bushes longer than that of most other varieties, keeping so well after maturity that the season's product can be harvested in two pickings. The berries are very good for all culinary purposes, requiring less sugar than most other black raspberries, and are said to make the best evaporated product. A characteristic of the plants is that they bear their fruits in very compact clusters so that the crop is easily harvested. Unfortunately the plants, while hardy and productive, are highly susceptible to several of the serious ills of black raspberries. The original plant of this variety was found as a chance seedling by A. B. Katkamier on his farm at Macedon, New York, in 1912.

Plants above medium in height, vigorous, with upright tendency, hardy, productive, variable in health; canes rather stocky, with thick bloom; prickles of medium length,

HONEYSWEET

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strength and number, slender, greenish; leaflets 3–5, broad-oval, rugose, dull, with dentate margins; petiole slender, prickly, glabrous, glaucous. Flowers midseason; pedicels prickly, slightly pubescent. Fruit early midseason, period of ripening short; medium to large, frequently bunched in compact clusters, roundish conic, glossy black, with scarcely any bloom, adheres strongly to the torus which is roughish and blunt-pointed; drupelets of medium size, cohering strongly so that the berries do not crumble; flesh juicy, very firm but tender, markedly sweet; very good in quality.

Hoosier. 1. *Am. Pom. Soc. Cat.* 49. 1909. 2. *U. S. D. A. Yearbook* 429, Pl. 36. 1910.

Originated about 1895 by John W. Durm, Pekin, Indiana. It is said to be a cross between Gregg and McCormick made in an effort to produce a variety that would be both hardy and resistant to anthracnose. It was disseminated in 1898 by Alvia G. Gray, Pekin, Indiana. The plants are not always hardy and are susceptible to anthracnose. It was placed in the catalog of the American Pomological Society in 1909. Plants medium in size and vigor, upright, productive; canes medium in number, stocky, glaucous with a medium number of strong, straight, prickles; leaflets large, dark green; fruit large, variable in size, irregular, roundish; drupelets large, numerous, round, strongly coherent; glossy black, firm, juicy, subacid, rich; good; midseason.

Hoosier Mammoth. 1. *Gard. Mon.* **23**:304. 1881.

Described as a very promising blackcap, just introduced. Plants vigorous, hardy and very productive; fruit very large, black, rich.

Hopkins. 1. *Ia. Hort. Soc. Rpt.* 416. 1882. 2. *N. Y. Sta. Bul.* **278**:129. 1900.

Brought into cultivation from the woods near Kansas City, Missouri, about 1872 by a Mrs. Mahoney. The variety came into the possession of G. W. Hopkins, Springfield, Missouri, secretary of the Missouri Horticultural Society, and was named in his honor by the Society. The stock was disseminated soon after by Frank Holsinger, Rodedale, Kansas. As grown at this Station the plants lacked productiveness. It was in the catalog of the American Pomological Society in 1889 and 1891. Plants moderately vigorous, hardy and moderately productive; fruit large, nearly firm; drupelets medium in size; attractive black, sweet; good; early midseason.

Idaho. 1. *Mich. Sta. Bul.* **111**:35. 1894.

Sent out by F. R. Palmer, Mansfield, Ohio, in 1890. Received by him from a Mr. Ellis, Dayton, Washington, with the statement that it came from the mountains near Lewiston, Idaho. Plants vigorous, productive; fruit large, roundish oblate, nearly black with a dense pubescence, sprightly, vinous; good; late midseason.

Ideal. 1. *Rural N. Y.* **52**:430. 1893.

Described in 1893 by C. P. Augur, of Connecticut, as having been found by him in 1890 growing near a Gregg plantation. As good as Souhegan and larger and better than Gregg on his heavy soil.

Indiana. 1. *Rural N. Y.* **47**:678. 1888. 2. *Mich. Sta. Bul.* **55**:22. 1889.

Received at the Michigan Station in 1884 from E. Y. Teas, Irvington, Indiana. As grown at the Michigan Station the variety was no improvement over Doolittle. The

plants lacked vigor, but were productive; fruit large, roundish oblate, black with considerable pubescence, firm, lacking juice, rich, pleasing; midseason.

Ironclad. 1. *Ohio Hort. Soc. Rpt.* 112. 1887–88.

Originated about 1885 by a Mr. Wilson, Forest, Ohio, but had not been disseminated in 1887. Very vigorous, healthy, productive; fruit good; earlier than Tyler.

Johnson Sweet. 1. *Rural N. Y.* **46:**122. 1887.

Key's Prolific. 2. *N. Y. Sta. Rpt.* 256. 1886.

In 1883 Robert Johnson, Shortsville, New York, received this variety from John B. Hoag, Judsonia, Arkansas, where it had been growing in the garden of a Mr. Key for twenty years. Johnson sent out plants for trial in 1886 under the name of Key's Prolific, but introduced it in 1887 as Johnson Sweet. As grown at this Station, the fruit was sweet, but too small to be of value. It was placed in the American Pomological Society's fruit catalog in 1889 and removed in 1899. Plants above medium height, medium in vigor, upright, not fully hardy, productive; canes numerous, medium in size, glaucous; prickles medium in size and number, strong; flowers small; fruit small, variable in size, roundish oblate; druplets medium to few in number, medium size, of medium coherence; dull black, firm, sweet to mildly sprightly; good; midseason.

Kansas. 1. *Am. Gard.* **12:**120. 1891. 2. *U. S. D. A. Pom. Rpt.* 394, Pl. X. 1891. 3. *N. Y. Sta. Bul.* **278:**129. 1906.

Several serious faults have kept Kansas from becoming a standard commercial berry in the black raspberry regions of the country. A fault that is all but fatal is that of winter killing. In other characters the plants stand out conspicuously among their kind; thus they are very resistant to rosette; exceedingly productive; and well adapted to many soils. The fruits have many faults and a few merits: The berries are often imperfect and exceedingly variable in size and shape; and they crumble under unfavorable conditions. To offset these defects of the fruit, the berries, when well grown, are large, sweet and of the very best quality. The variety finds favor and is largely grown in many localities because of its great productiveness. The original plant of this variety sprang up as a chance seedling on the farm of A. H. Griesa, Lawrence, Kansas, in 1884. The variety was not generally introduced until about 1891. The American Pomological Society added Kansas to its catalog list of fruits in 1897.

Plants medium in size and vigor, upright-spreading, somewhat tender to cold, very productive, not always healthy, very resistant to rosette, susceptible to anthracnose, contract the streak disease slowly; canes numerous, stocky, green becoming brownish red, with very heavy bloom; prickles large, thick, strong, numerous, greenish; leaflets usually 3, broad-ovate to broad-oval, variable in size, dark green, dull, rugose, with dentate margins; petiole short, slender, prickly, glabrous, slightly glaucous. Flowers midseason; pedicels prickly, somewhat pubescent; calyx smooth. Fruit early midseason, or earlier; medium to rarely large, broadly hemispherical, variable in size and shape, often with many imperfect or malformed berries, glossy black or with more or less bloom, adheres well to the torus which is roughish and rounded; drupelets rather small, round, usually cohering strongly, although this varies on some soils; flesh not very juicy, firm, subacid or sweet to mildly sprightly; good in quality.

KANSAS

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Kellogg. 1. *Mich. Sta. Bul.* 55:22. 1889.

A chance seedling which originated with George J. Kellogg, Janesville, Wisconsin, about 1875. Plants hardy, vigorous and productive; fruit with the appearance and season of Doolittle.

Kerr White. 1. *Mich. Sta. Bul.* 81:10. 1892.

On trial at the Michigan Station in 1892. Plants moderately vigorous; fruit large, roundish, light yellow, pubescent; good; early.

Kimball. 1. *Am. Pom. Soc. Rpt.* 138. 1885.

Mentioned at the meeting of American Pomological Society in 1885 by J. H. Bourn, Providence, Rhode Island, as new, and as ripening before Souhegan. It is a chance seedling found by him on the farm of James Kimball near Providence.

King of the Cliffs. 1. Bradley Bros. *Cat.* 12. 1913.

A chance seedling found growing among rocks in the spring of 1905; introduced in 1913 by Bradley Brothers, Makanda, Illinois, as a continual bearing sort. Plants tall, vigorous, upright-spreading, productive; canes stocky, greenish, heavily glaucous; prickles medium to few in number, strong; flowers early; torus smooth, round, very short, releasing the fruit readily; fruit of medium size, uniform, irregular, roundish oblate; drupelets medium in number, above medium in size, of medium coherence; black with moderate amount of bloom, medium juicy, firm, sprightly; good; early midseason.

Kumri. 1. *Ia. Hort. Soc. Rpt.* 405. 1917.

Reported at the 1917 meeting of the Iowa Horticultural Society as a new promising sort from Amazonia, Missouri. Plants as vigorous as those of Cumberland.

Lawrence. 1. *N. Y. Sta. Bul.* 128:341. 1897.

Originated by A. H. Griesa, Lawrence, Kansas, prior to 1895, in which year it was introduced by the originator. As grown at this Station it is a fairly promising sort. Plants vigorous, nearly hardy, productive; fruit large, moderately firm, attractive black; fair to good; midseason.

Leffel. 1. *Ohio Sta. Bul.* 146:39. 1903.

Sent to the Ohio Station for trial about 1902. Late, resembling Gregg.

Lindsey. 1. *Ia. Hort. Soc. Rpt.* 478. 1882.

A medium-sized berry, better than Doolittle, cultivated in Iowa and said to have originated in Michigan.

Little. 1. *Mich. Hort. Soc. Rpt.* 169. 1882.

Originated with John Little, Granton, Ontario. Sent to T. T. Lyon in 1881 for trial and described by him as follows: Plants moderately vigorous, hardy; canes slender, reddish brown with very few purplish white spines; fruit small, round, glossy black, firm, seedy, juicy, acid, rich; early.

Livingston. 1. *Mich. Sta. Bul.* 177:25. 1899. 2. *N. Y. Sta. Bul.* 278:130. 1906.

A chance seedling found in a vineyard by C. W. Middleton, Utica, Missouri. Plants were received from Mr. Middleton in 1898 at this Station. Plants vigorous, fairly hardy, productive; fruit medium to large, attractive black, firm, mild; good.

Lotta. 1. *Am. Pom. Soc. Rpt.* 132. 1887.

Brackett No. 101. 2. *N. Y. Sta. Bul.* **63**:673. 1893.

A chance seedling which originated on the farm of G. C. Brackett, Lawrence, Kansas, prior to 1887. It is supposed to be a cross of a seedling and Gregg. Mr. Brackett sent it out about 1890 as Brackett No. 101, later naming it Lotta. It was placed in the fruit list of the American Pomological Society in 1897 and remained in the last list in 1909. Plants vigorous, hardy and productive; fruit large, attractive bright black, firm, moderately juicy, somewhat seedy; very good; midseason.

Lovett. 1. Lovett *Cat.* 15, Pl. 1891. 2. *N. Y. Sta. Bul.* **36**:639. 1891.

Lovett's Early. 3. *Rural N. Y.* **50**:558, fig. 203. 1891.

Originated as a chance seedling with Ezra Wood, Jefferson County, Indiana, about 1875. J. T. Lovett, Little Silver, New Jersey, purchased the stock for one thousand dollars and introduced it in 1891. As grown at this Station it is a fairly good sort, but not superior to standard varieties. Plants moderately vigorous, fairly hardy productive; canes slender; fruit large, attractive black, firm, moderately juicy, sweet; good; early.

Lum Everbearing. 1. *Am. Pom. Soc. Rpt.* 172. 1867.

Raised from seed by H. B. Lum, Sandusky, Ohio, previous to 1865 in which year it was first exhibited before the Ohio Horticultural Society. Described as similar to the Ohio Everbearing. Plants stockier and not as tall as Doolittle; fruit large, black, sweet, resembling Doolittle in size and quality at summer fruiting, but berries much larger in the autumn crop.

McCormick. 1. *Am. Pom. Soc. Rpt.* 109. 1869.

Mammoth Cluster. 2. *Horticulturist* **23**:273. 1868.

This old sort is supposed to have originated near Collinsville, Indiana, prior to 1867. About 1867 A. M. Purdy, Palmyra, New York, began propagating it extensively under the name Mammoth Cluster. From that time its culture spread rapidly and it soon became the leading blackcap, a position it held until the introduction of the Gregg. Its popularity was due to its vigorous, healthy and productive plants. The fruit was considerably larger than that of the sorts then cultivated. It was generally known as Mammoth Cluster, but the American Pomological Society, recognizing the priority of the name McCormick, placed it upon its fruit catalog list in 1871 under that name, where it remained in 1909. Plants vigorous, hardy, productive; canes strong with few prickles; fruit of medium size, roundish, black, firm, juicy, rich; good; late midseason.

Mammoth. 1. *Am. Pom. Soc. Rpt.* 161. 1920.

Introduced by the Portland Seed Company, Portland, Oregon. Fruit black; good.

Manwaring.

Manwaring No. 1. 1. *N. Y. Sta. Bul.* **91**:201. 1895.

A chance seedling received at this Station in 1893 from C. H. Manwaring, Lawrence, Kansas. Plants dwarfish, hardy; fruit small, black, firm, mildly subacid; inferior quality. Of no value.

May King. 1. *Mich. Sta. Bul.* **151**:164. 1897.

Jackson's May King. 2. *Mich. Sta. Bul.* **88**:11. 1892.

Cataloged by Storrs & Harrison in 1887; on trial at the Michigan Station in 1892. Plants unproductive, very susceptible to anthracnose and easily injured by drouth; fruit small, jet black with considerable down; poor.

Miami. 1. Fuller *Sm. Fr. Cult.* 143. 1867.

An old sort found growing along the Miami River in Ohio prior to 1867. The variety has been confused with McCormick and has been given as a synonym of that variety, which it is said to resemble. Plants very vigorous, hardy and productive; fruit large, black with a brownish red cast, sweet, juicy; good; earlier than McCormick.

Midwest. 1. Card *Bush-Fr.* 159. 1917.

Said to be a cross between Cumberland and Cardinal originated by G. W. Alexander, Peru, Nebraska, prior to 1909. Despite the statement that Cardinal is one parent, this variety as grown at this Station shows no Strigosus characters, and is to all appearances a typical blackcap. Plants vigorous, upright, fairly hardy and productive; fruit large, roundish oblate; drupelets of medium coherence; black, firm, juicy, mildly sprightly; good; late.

Miller Daily. 1. *Horticulturist* **28**:21, 86. 1872.

An autumn-fruiting sort found by Isaac Miller, Clinton County, Ohio, prior to 1870. Plants hardy, as vigorous as Gregg; fruit large, black, juicy; excellent.

Mills. 1. *N. Y. Sta. Bul.* **128**:341. 1897.

Mills No. 15. 2. *Ibid.* **63**:674. 1893.

A seedling of Gregg by Tyler raised in 1884 by Charles Mills, Fairmount, New York, by whom it was disseminated about 1891. The American Pomological Society placed Mills in its fruit catalog list in 1901, leaving it in the last list in 1909. Plants vigorous, fairly hardy, productive; fruit large, dull black with considerable bloom, firm, juicy, sweet, fine flavored; good; late.

Mills No. 1. 1. *N. Y. Sta. Bul.* **63**:674. 1893.

A seedling of Gregg by Tyler raised in 1884 by Charles Mills, Fairmount, New York. Plants very vigorous and nearly hardy; fruit large, firm, seedy, moderately juicy, sweet; good; late.

Minnesota. 1. *Cult. & Count. Gent.* **34**:136. 1869.

An inferior sort from Minnesota variously described as straw colored or dark orange.

Missouri. 1. *Mo. Hort. Soc. Rpt.* 46. 1903.

A chance seedling, found in 1893 by Henry Wallis, Wellston, Missouri, and sent out by him in 1900. Plants said to be very hardy and the fruits very large.

Mohler. 1. *Ohio Hort. Soc. Rpt.* 155. 1893. 2. *N. Y. Sta. Bul.* **81**:586. 1894.

Originated by D. M. Mohler, New Paris, Ohio, from seed of Eureka planted in 1885. As grown at this Station Mohler is a promising early variety well recommended on account of size and attractiveness of fruit and productivity of plant. Plants large, vigorous, fairly hardy and very productive; fruit large, black, firm, juicy, nearly sweet; fair.

Moody. 1. *Mo. Hort. Soc. Rpt.* 295. 1884.

Mentioned as a white sort; very productive; fruit of good size and flavor.

Mulatto. 1. *Can. Hort.* **28**:25. 1905.

On trial at the Ontario Agricultural College prior to 1905. Originated with A. E. Sherrington, Walkerton, Ontario. A yellow sort of poor quality; soon discarded.

Munger. 1. *Am. Gard.* **18**:255, fig. 74. 1897. 2. *Mich. Sta. Bul.* **171**:287. 1898.

Grown from seed of Shaffer, about 1890, by Timothy Munger, western Ohio; introduced by W. N. Scarff, New Carlisle, Ohio, in 1897. On trial at this Station for two seasons, it has not shown itself equal to standard sorts. Neither the plants nor the fruits of this variety show any of the characters of its reputed parent. Plants above medium height, vigorous, upright, hardy, only moderately productive; canes stocky, greenish, heavily glaucous, with numerous, slender prickles; flowers medium in season; torus blunt-pointed, slightly rough, releasing the berry readily; fruit variable in size, averaging medium, regular, roundish to roundish conic; drupelets numerous, below medium in size, strongly coherent, black with a light bloom, juicy, firm, mild, sweet; good; late midseason.

Munson Everbearing. 1. Card *Bush-Fr.* 159. 1917.

Mentioned as the most reliable variety in Nebraska, but poor and small.

Mystery. 1. *Minn. Sta. Bul.* **25**:247. 1892.

On trial at the Minnesota Station in 1892. Received there from Kentucky as an everbearing sort. Plants medium to large; fruit of fair size, lacking quality; not autumn-fruiting in Minnesota.

Nemaha. 1. *Rural N. Y.* **43**:544. 1884.

Ex-Governor Robert W. Furnas found this sort about 1864 near the Missouri River in Nemaha County, Nebraska. About 1884 it was introduced by Green's Nursery Company, Rochester, New York. It is very similar to Gregg, but considerably hardier than that variety, this fact making it a valuable sort where hardiness is essential. The fruit is a little smaller, a little later, slightly blacker and of better quality than that of Gregg. Nemaha was placed in the fruit list of the American Pomological Society in 1889 and remained in the last list in 1909. Plants vigorous, hardy, moderately productive; fruit medium in size, roundish oblate, black, firm; good; late.

New American. 1. Stark Bros. *Supl. Cat.* 34. 1910.

Originated about 1893 with D. J. Miller, Millersburg, Ohio. Stark Brothers, Louisiana, Missouri, named and introduced it about 1910 and have propagated it in a moderate way since then. Plants vigorous, healthy, and hardy; fruit large and very firm.

New Haven. 1. Card *Bush-Fr.* 171. 1898.

A chance seedling which originated on the grounds of E. E. Clark, New Haven, Connecticut. Described as having large, vigorous plants; fruit large, juicy, with small seeds.

Norfolk. 1. *Mich. Sta. Bul.* **88**:11. 1892.

On trial at the Michigan Station in 1892. Unsatisfactory. Fruit small, round, black; good; early midseason.

Northfield. 1. *Mich. Sta. Bul.* **111**:44. 1894.

Sent out a few years prior to 1894 by M. T. Thompson, Rio Vista, Virginia. Plants fairly vigorous, healthy, and productive; fruit small.

Ohio. 1. *Mich. Pom. Soc. Rpt.* 195. 1883. 2. *Mich. Sta. Bul.* **111**:294. 1894. 3. *Cornell Sta. Bul.* **117**:420. 1896.

With the decline of the evaporation of black raspberries Ohio is passing out. When the evaporation of this fruit was a great industry in New York, Ohio was the variety best suited for this purpose, since it yielded more pounds to a bushel of fresh fruit than any other black raspberry, for the reason that the seeds are large and heavy and the flesh is firm and dry. The fruits, however, are not of high quality, and are not liked either for general market or for canning. The plants are susceptible to the several diseases of this fruit and are quickly injured by drouths. They are very productive, fairly hardy, and are usually vigorous. The variety may be known by the silvery whiteness of the under surface of the leaves and of the stems. Ohio may be a seedling of Doolittle. At any rate it originated about 1865 in a bed of Doolittle plants on the farm of Hiram Van Dusen, Palmyra, New York. The American Pomological Society added Ohio to its fruit catalog list in 1883. Ohio should not be confused with Ohio Everbearing of Ohio origin, long since dropped from cultivation.

Plants of medium height and vigor, upright-spreading, hardy, very productive, susceptible to rosette, anthracnose and the streak disease; canes of medium thickness, light green changing to dull reddish brown, silvery white beneath, heavily glaucous; prickles of medium thickness and strength, numerous, greenish; leaflets 3, of medium size and color, rather small on the bearing canes, very light colored on the under surfaces, ovate, rugose, with serrate margins; petiole slender, glabrous, glaucous. Flowers midseason, numerous; pedicels short, of medium thickness. Fruit midseason, injured by drouth, season short, dries exceptionally well, somewhat seedy; medium to above in size, scarcely ever large, hemispherical, rather dull reddish black changing to an attractive color at maturity, glaucous, clings well but releases readily from the torus which is roughish and rounded; drupelets medium in size, roundish oval, variable in coherence; flesh but moderately juicy, very firm, seedy, sweet to pleasantly subacid; quality good to very good.

Ohio Everbearing. 1. Kenrick *Am. Orch.* 294. 1841. 2. *Gard. Mon.* **3**:134. 1861.

This variety was cultivated as long ago as 1832. It was first recommended to eastern growers by Nicholas Longworth, Cincinnati, Ohio. The American Pomological Society placed Ohio Everbearing in its fruit catalog list in 1862 but dropped it in 1897. For a further discussion of this sort see page 12.

Older. 1. *Am. Pom. Soc. Rpt.* 83. 1891. 2. *N. Y. Sta. Bul.* **63**:675. 1893.

A chance seedling found about 1872 by a Mr. Older, Independence, Iowa. It attained some importance because of the vigor, hardiness and productivity of the plants and the large fruit. It was placed in the catalog of the American Pomological Society in 1897 remaining in the last catalog in 1909. Plants trailing, vigorous, hardy, moderately productive; fruit large, glossy, black, without bloom, firm, moderately juicy, rich subacid; midseason.

Onondaga. 1. *N. Y. Sta. Bul.* **128**:341. 1897.

Mills No. 7. 2. *Ibid.* **63**:674. 1893.

A seedling of Gregg by Tyler raised in 1884 by Charles Mills, Fairmount, New York. It was sent out as Mills No. 7, and in 1894 was named Onondaga. As grown at this Station

it was promising, the plants being very vigorous, hardy and productive; fruit large, attractive, moderately juicy, firm, sweet; good.

Ontario. 1. *Horticulturist* **26**:279. 1871.

Found in 1866, near Fairport, New York, by E. W. Lord, Newark, New York, by whom it was brought to notice. It seems not to have gone beyond the trial stage. Plants vigorous, hardy, and very productive; fruit large, deep black with thick bloom, very firm, juicy, sweet; good; early with long season.

Oregon. 1. *Mich. Sta. Bul.* **111**:47. 1894.

Reported in 1877 as valuable in Oregon. F. W. Miller, Portland, Oregon, says this is the native sort which grows wild in Oregon and Washington. Fruit juicy, larger than Gregg.

Othello.

A chance seedling discovered about 1908 by Louis Graton, Trumansburg, New York. Plants were sent to this Station in 1915. As grown here, the plants are tender to cold, and unproductive; fruit medium in size, firm, seedy, sprightly; good.

Ozark. 1. *Mo. Hort. Soc. Rpt.* 182. 1886.

A seedling brought to notice by a Mr. Holman, of Missouri, in 1886. Similar to Gregg. Plants vigorous; fruit late.

Palmer. 1. *Ann. Hort.* 104. 1889. 2. *N. Y. Sta. Bul.* **91**:202. 1895.

Acme. 3. *Ind. Sta. Bul.* **31**:8. 1890.

Originated by F. R. Palmer, Mansfield, Ohio, in 1882; introduced in 1888. It is a supposed seedling of Gregg by Tyler. It achieved some prominence as an early sort. At this Station the berries lack size, and the plants are not productive, but it is of value for its earliness. Palmer was placed in the catalog of the American Pomological Society in 1897, and remained in the last list in 1909. Plants vigorous, usually hardy, moderately productive; fruit of medium size, dull black, firm, juicy, nearly sweet; good; early.

Pennock. 1. *Colo. Sta. Bul.* **60**:10. 1900.

Originated by Charles E. Pennock, Bellvue, Colorado. Plants slender, vigorous, healthy.

Perpetual King. 1. *Columbian Grape Co. Cat.* 1897. 2. *N. Y. Sta. Bul.* **278**:131. 1906.

Introduced in 1897 by the Columbian Grape Company, Kingston, Ohio. As grown at this Station, the plants are weak, dwarfish, thickly covered with prickles, not hardy and unproductive; fruit of medium size, unattractive black, moderately firm, slightly acid; fair.

Phœnix. 1. *Mich. Sta. Bul.* **152**:181. 1898.

On trial at the Michigan Station in 1898 where it failed to show any merit. Plants weak and unproductive; fruit medium in size, black, moderately juicy, mild; early.

Pioneer. 1. *Mich. Sta. Bul.* **111**:50. 1894.

Progress. 2. Lovett *Cat.* 1889.

Beinor. 3. *N. J. Hort. Soc. Rpt.* 162. 1894.

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Originated with Jacob Muhl, Hammonton, New Jersey. J. T. Lovett, Little Silver, New Jersey, introduced the same berry as Progress. It was tried extensively but seems not to have become of any importance as grown at this Station. The plants are only moderately vigorous and fairly hardy; fruit medium in size, dull black, firm, acid; fair; midseason.

Plum Farmer. 1. *Ill. Hort. Soc. Rpt.* 218. 1907. 2. *N. Y. Sta. Bul.* **364**:191. 1913. 3. Card *Bush-Fr.* 161, Pl. II. 1917. 4. *Ind. Sta. Bul.* **201**:11. 1917. 5. Hedrick *Cyc. Hardy Fr.* 283. 1922.

This variety is comparatively new, but has been under cultivation long enough to have its merits and faults judged. It is the concensus of opinion among the black raspberry growers of New York that Plum Farmer is one of the best commercial sorts. The plants are preëminently vigorous, hardy, healthy, and productive. Moreover, they withstand well the dry, hot weather that so often plays havoc with this fruit. Unfortunately they are quite susceptible to the several diseases which make the growing of black raspberries so hazardous in eastern America. The fruits, which ripen in early midseason, are large, beautiful, of high quality and ship well. The variety may often be told in the fruit plantation by its spreading habit of growth. The first plant of this variety was found by L. J. Farmer, Pulaski, New York, in a shipment of raspberries from Ohio, about 1892, from which introduction was begun in 1895.

Plants tall, vigorous, upright to quite spreading, hardy, very productive, contracting the streak disease rapidly, susceptible to anthracnose and rosette; canes numerous, stocky, green becoming brownish red, very heavily glaucous; prickles of medium length and thickness, numerous, greenish; leaflets usually 3, intermediate in size and color, sometimes dark green, and narrowly and deeply lobed, rugose, with coarsely dentate margins; petiole slender, prickly, glabrous, slightly glaucous. Flowers midseason; pedicels prickly, pubescent; calyx not prickly. Fruit early midseason, ships and dries fairly well; large, broadly hemispherical, very black but not glossy, with considerable bloom, adheres fairly well to the slightly roughened and rounded torus yet releasing the berries readily; drupelets rather small, rounded, cohering strongly so that berries do not crumble; flesh juicy, medium in firmness, sprightly at first becoming mild at full maturity; quality good.

Prairie Queen. 1. *Ohio Hort. Soc. Rpt.* 181. 1886–87.

Mentioned in the report of the Ohio Horticultural Society for 1886–87 as coming from A. D. Ashbaugh, Girard, Illinois. Plants hardy; fruit of fine quality; earlier than Souhegan.

Pride of Ohio. 1. *Mich. Sta. Bul.* **206**:58. 1903. 2. *Va. Sta. Bul.* **147**:60. 1903.

A chance seedling which originated with A. D. Leffel, New Carlisle, Ohio, prior to 1909; introduced about 1901. At the Virginia Station in 1903 it was considered the most promising new sort.

Pride of the West. 1. *Mich. Sta. Bul.* **81**:10. 1892.

On trial at the Michigan Station in 1892. Plants moderately vigorous and productive; fruit large, roundish ovate, glossy black; fair; early.

Queen of the West. 1. *Mich. Sta. Bul.* **111**:52. 1894.

Originated in Douglas County, Kansas, prior to 1890. Plants more productive than Souhegan; fruit larger and later than that sort.

Quillen. 1. *Am. Pom. Soc. Rpt.* 161. 1920.

A cross between Cumberland and Hopkins which was grown about 1913 by Charles Quillen, Monrovia, Indiana. Introduced in 1917 by C. M. Hobbs & Sons, Bridgeport, Indiana. Plants medium to dwarfish, vigorous, spreading, half hardy, productive; canes stocky, with rather small prickles; fruit large, uniform, roundish oblate, drupelets cohering strongly, glossy black, firm, moderately juicy, subacid; good; later than Cumberland.

Rachel. 1. Card *Bush-Fr.* 162. 1917.

A chance seedling which originated with Rachel D. Mitchell, Geneva, New York, about 1892. Plants were received at this Station in 1910 and since then it has made an excellent showing. The plants are very vigorous, upright, hardy, productive and nearly immune to anthracnose; foliage healthy, dark green; fruit large, attractive black; drupelets cohering strongly; firm, medium juicy, mild, sweet; good; very late.

Ransom Everbearing. 1. *Mich. Sta. Bul.* **111**:53. 1894.

Sent out by Stark Brothers, Louisiana, Missouri, in 1890. Plants moderately vigorous, productive; fruit small; good.

Rex. 1. *Mich. Sta. Bul.* **111**:55. 1894.

Raised from seed of Gregg by John W. Perry, Covington, Ohio, about 1885. As tried at the Ohio Station it was inferior to Gregg, but with Mr. Perry it was superior to that sort.

Rowena. 1. *N. Y. Sta. Bul.* **278**:132. 1906.

Stahelin. 2. *Mich. Sta. Bul.* **171**:286. 1899.

A chance seedling found by F. C. Stahelin, Bridgman, Michigan. Plants were sent to this Station in 1897 and as grown here the variety is of little value. Plants very vigorous, hardy, productive; fruit below medium in size, dull black, with considerable bloom, firm; fair.

Rundell. 1. *Mich. Sta. Bul.* **88**:11. 1892.

A chance seedling found in 1888 by Charles Rundell, New Buffalo, Michigan, who sent it out for trial, but being a yellowcap, and similar to Beebe, it met with little favor.

Sam Stewart. 1. *Cult. & Count. Gent.* **34**:136. 1869. 2. *Am. Hort. Ann.* 103. 1870.

Described in 1870 as a new sort from Michigan recently introduced by Purdy & Johnson, Palmyra, New York. Plants very productive; fruit large, oblong, attractive, firm.

Saunders No. 60. 1. *Mich. St. Bd. Agr. Rpt.* 307. 1895.

A seedling of Gregg raised by William Saunders, London, Ontario. Plants productive, not hardy at Ottawa; fruit very large, purplish black; inferior in quality; late.

Savanna. 1. *Mich. Sta. Bul.* **111**:57. 1894.

Obtained from the woods near Savanna, Oklahoma, by T. V. Munson, Denison, Texas, who describes the plant as vigorous, upright, enduring climatic extremes, very productive; fruit large, sweet; very early.

Scarff. 1. Scarff *Cat.* 6. 1916.

Discovered about 1906 by Washington Taggart, New Carlisle, Ohio, growing near a field of Gregg, of which this is supposed to be a seedling. It was introduced in 1915 by

PLUM FARMER

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W. N. Scarff, New Carlisle, Ohio. As grown at this Station Scarff has not shown much promise, the fruit being rather small, unattractive and seedy. Plants medium in height and vigor, spreading, moderately productive; canes rather slender to moderately stocky, green, heavily glaucous; prickles numerous, thick, strong, green; fruit of medium size, surface irregular; drupelets medium in size, cohering strongly, glossy black, firm, seedy; variable in flavor and quality; early.

Seneca. 1. *Trans. Am. Inst.* 231. 1867. 2. *Horticulturist* **24**:310, 324, fig. 1869.

Raised prior to 1867 by a Mr. Dell, Seneca County, New York; introduced in 1867 by Doolittle & Wright, Waterloo, New York. It was widely disseminated but never became an important sort. The American Pomological Society added Seneca to its catalog in 1881, but removed it in 1883. Plants very vigorous, very productive; prickles reddish, strong, numerous; fruit of medium size, black with a purplish tinge, with light bloom, juicy, sweet; midseason.

Smith. 1. *Am. Pom. Soc. Cat.* 40. 1879.

Smith Ironclad. 2. *Mich. Sta. Bul.* **111**:59. 1894.

Found about 1875 in a lot of trees purchased from an agent by a Mr. Smith, in Kansas; probably an old sort renamed. The American Pomological Society placed Smith in its catalog list in 1879 where it remained until 1897. Fruit very large, round, black; good; midseason.

Smith Giant. 1. *Can. Hort.* **15**:233. 1892.

A supposed seedling of Gregg raised from seed by A. M. Smith, St. Catherines, Ontario, in 1888; said to be similar to Gregg. In Ontario it is considered a valuable sort for market. Plants vigorous, fairly hardy in Ontario, productive; fruit very large, black with heavy bloom; very good; late.

Smith (I). 1. Card *Bush-Fr.* 163. 1917.

Received at this Station in 1908 from S. A. Smith, Geneva, New York. It was used as a parent in breeding black raspberries at this Station and gave many promising seedlings.

Smith (II). 1. *N. Y. Sta. Bul.* **63**:675. 1893.

A chance seedling sent to this Station in 1889 by B. F. Smith, Lawrence, Kansas. Fruit of medium size, firm, sweet; very good.

Smith Prolific. 1. *N. Y. Sta. Bul.* **63**:675. 1893.

A chance seedling found about 1884 by Ezra G. Smith, Manchester, New York. It was placed in the fruit list of the American Pomological Society in 1897 and removed in 1899. Plants very vigorous, rather tender to cold, productive where hardy; fruit large, bright black, firm, juicy, seedy, sweet; good; early.

Souhegan. 1. *Gard. Mon.* **23**:304. 1881.

A chance seedling found in 1869 by J. A. Carlton, Mt. Vernon, New Hampshire. It was named after the Souhegan River near which it originated. The variety was introduced in 1881 by G. H. & J. H. Hale, South Glastonbury, Connecticut. Souhegan rapidly became the leading early sort, later sharing that place with Palmer and Tyler. The plants are hardy and productive, and bear handsome glossy black fruit which ripens very

early. The American Pomological Society placed Souhegan in its catalog in 1881 and it remained in the last list in 1909. Plants vigorous, hardy, very productive; fruit medium in size, round, glossy black with slight bloom; drupelets small, firm; juicy, sprightly, rich; good; very early.

Spanish. 1. *Mich. Sta. Bul.* **111**:61. 1894.

Grown and sold by Henry Geisler, Watervliet, Michigan, who says that it is popular in his section and earlier than other sorts. One report says this is Gregg renamed.

Springfield. 1. *Gard. Mon.* **27**:275. 1885.

A chance seedling found about 1880 on the grounds of J. W. Adams & Company, Springfield, Massachusetts. After a brief trial it was considered worthless, and the stock given to a Mr. Chandler, on whose grounds it appeared so promising that Adams & Company introduced it. Plants vigorous, hardy, productive; canes without prickles; fruits small, firm, not juicy; good; early.

Spry Early. 1. *N. Y. Sta. Rpt.* 280. 1890.

A chance seedling found about 1884 by John Spry, Fort Atkinson, Wisconsin. It was introduced in 1888 by Coe, Converse & Edwards of the same place. Plants vigorous and productive; fruit medium in size, black, juicy, nearly sweet; early.

Stone Fort. 1. Lovett *Cat.* 12. 1908.

Sent out in 1908 by J. T. Lovett, Little Silver, New Jersey, and described by him as a chance seedling from Illinois. As grown at this Station it is inferior to standard sorts. Plants vigorous, upright-spreading, not always hardy, subject to anthracnose, productive; prickles medium in number, strong; fruit medium to large, roundish oblate; drupelets above medium in size, cohering strongly; glossy black, moderately juicy, firm, seedy, mild subacid; good; late midseason.

Success. 1. Card *Bush-Fr.* 174. 1898.

Waters' Success. 2. *Mich. St. Bd. Agr. Rpt.* 318. 1895.

Sent out by J. M. Waters, Fernhill, Ontario, in 1893. It was considered very valuable on the trial grounds of the *Rural New-Yorker*, because of having large canes and large fruit.

Summit. 1. Fuller *Sm. Fr. Cult.* 144. 1867.

A chance seedling found prior to 1867 by Daniel Supher, Crawford County, Pennsylvania. Plants vigorous; canes pale orange-yellow with considerable bloom; prickles numerous, short, hooked; fruit of medium size, roundish oblate, orange with pink at base of drupelets which are small and compact, rather dry; very sweet.

Surprise. 1. *Horticulturist* **21**:272. 1866.

A chance seedling found in a fence corner in 1858 by George Husmann, Hermann, Missouri. Plants stiff, upright, vigorous; prickles few, short; fruit large, oblong or pointed, black, with heavy bloom, rich and sprightly.

Surrey. 1. *Va. Sta. Bul.* **22**:107. 1892.

Introduced by the Cleveland Nursery Company, Rio Vista, Virginia, prior to 1892. The Virginia Station at first considered it promising but later discarded it as of no value. Plants lacking vigor and unproductive; fruit medium in size, firm; early midseason.

Sweet Golden. 1. *Wis. Sta. Bul.* **72**:21. 1899.

A yellow-fruited blackcap received at the Wisconsin Station in 1893 from C. A. Sherwood, Whitehall, Wisconsin. Fruit small, dull, unattractive, sweet, mild.

Sweet Home. 1. *Gard. Mon.* **22**:111. 1880.

A seedling of Lum Everbearing which originated in Illinois and was considered better than McCormick by some. In most places the plant lacks vigor, productiveness and size.

Thompson Sweet. 1. *Mass. Sta. Bul.* **2**:23. 1888.

On trial at the Massachusetts Station in 1888 where the plants were weak, not hardy, unproductive; fruit small, firm; good; early.

Townsend No. 2. 1. *N. Y. Sta. Bul.* **91**:202. 1895.

Plants were received at this Station in 1894 for trial from George Townsend, Gordon, Ohio, who raised the variety from seed of Gregg. It proved inferior to standard sorts, the fruit being unattractive and inclined to crumble. Plants vigorous, hardy, productive; fruit medium in size, black with heavy bloom, firm, crumbly, seedy, sweet; good.

Tye. 1. Will *Cat.* 97. 1921.

Brought into cultivation from the wild by Otis A. Tye, Price, North Dakota. Introduced in 1921 by the Oscar H. Will Company, Bismarck, North Dakota, and said by them to be of value only for its hardiness.

Tyler. 1. *Mich. Hort. Soc. Rpt.* 360. 1882.

A chance seedling found growing among plants of McCormick and Seneca prior to 1876 on the grounds of Nathan Tyler, Auburn, New York. It was introduced about 1878 by Robert Johnson, Shortsville, New York, who named the variety Tyler. This variety is almost identical with Souhegan, differing from that sort in the fruit being a little later and the plants more vigorous and resistant to spring frosts. The American Pomological Society placed Tyler in its catalog in 1883; it remained in the last catalog in 1909. Plants vigorous, hardy and very productive; fruit of medium size, handsome jet black without bloom, firm, juicy; good; early.

Uncle Tom. 1. Hunt *Cat.* 1922.

A chance seedling found in a strawberry bed by Thomas R. Hunt, Sr., Lambertville, New Jersey, in 1910; introduced in 1921 by Thomas R. Hunt, Jr., of the same place. As grown at this Station from plants received in 1922, it seems to be a promising variety. The berries are very firm and attractive and the plants healthy and productive. Plants tall, vigorous, upright-spreading, apparently hardy, very productive; canes stocky, green, heavily glaucous; prickles very numerous, thick, strong; fruit uniformly large, some berries of irregular shape, roundish; drupelets medium in number, large, cohering strongly; glossy black with moderate amount of bloom, moderately juicy, very firm, slightly seedy, subacid; good; late midseason.

Virginia. 1. *Mich. Sta. Bul.* **88**:11. 1892.

The Cleveland Nursery Company, Rio Vista, Virginia, sent plants to the Michigan Station for trial, where after several years test it failed to show much merit. Plants weak,

subject to anthracnose and unproductive; fruit large, jet black, roundish conic, moderately firm; good.

Wade. 1. *Ann. Hort.* 194. 1892.

Found in 1884 under a grape trellis by John Wade, Veedersburg, Indiana. Introduced in 1892 by Albertson & Hobbs, Bridgeport, Indiana. Plants hardy, productive; fruit the size of Gregg; black.

Wallace. 1. *Neb. Hort. Soc. Rpt.* 216. 1900.

A seedling which originated about 1893 with a Mr. Wallace of Iowa. Described as having vigorous, hardy and productive plants; fruit medium to large, rather soft, tart, rich, later than Gregg with a long season.

Watson Prolific. 1. *Am. Pom. Soc. Rpt.* 207. 1922.

A chance seedling found in a fence corner in 1916 by Ira P. Watson, Fredonia, New York, who introduced it in 1920. It is in no way superior to Plum Farmer which it resembles. Plants vigorous, sprawling, productive, with dark green foliage; fruit large, attractive black; drupelets small, very firm, sprightly; good; early.

Wellesley. 1. *Am. Pom. Soc. Spec. Rpt.* 80. 1904–05.

Described as " the very best and largest extra early Black Cap grown. Superb in quality, very productive, vigorous, and perfectly hardy."

Westchester. 1. *Horticulturist* **24**:228, fig. 1869.

A chance seedling found about 1862 in the garden of L. J. Mabie, Tarrytown, New York. Advertised extensively by the originator but never became of importance. Plants vigorous; prickles numerous, large; fruit large, black with a light bloom, firm; good.

Wilmot. 1. *S. Dak. Sta. Bul.* **104**:293. 1907.

A wild blackcap found near Wilmot, South Dakota, which has been used by Prof. N. E. Hansen of the South Dakota Station in his breeding work. It did not prove sufficiently hardy and the plants were very thorny.

Windom. 1. *S. Dak. Sta. Bul.* **104**:293. 1907.

A wild blackcap from Windom, Minnesota, brought under cultivation by Prof. N. E. Hansen of the South Dakota Experiment Station, but which did not prove hardy.

Winfield. 1. *U. S. D. A. Yearbook* 380, Pl. 34. 1909.

A chance seedling found in 1902 in a grape arbor by G. F. Kleinsteiber, Winfield, Kansas. Introduced in 1909 by the Winfield Nursery Company of the same place. When first tried at this Station it seeemd to have considerable merit, the fruits being of large size, attractive appearance and fine quality, but later the plants were severely injured by anthracnose and the fruit became crumbly and of inferior quality. Plants vigorous, spreading, fairly hardy and very productive; canes stocky with a medium number of strong prickles; fruit borne in dense, compact clusters, large, roundish oblate; drupelets large, numerous, of medium coherence; glossy black with heavy bloom at base of drupelets, firm, juicy, subacid; good; late midseason.

Winona. 1. *N. Y. Sta. Bul.* **63**:676. 1893.

Introduced in 1890 by B. B. Scarff, New Carlisle, Ohio, by whom it had been tested for seven years previously. It seemed to have little merit, the plants lacking vigor and productiveness. It was placed in the catalog of the American Pomological Society in 1901, remaining in the last catalog in 1909. Plants rather weak and unproductive; fruit medium in size, moderately juicy, firm, sweet; good; midseason.

Wonder. 1. *Ann. Hort.* 133. 1892. 2. *Mich. Sta. Bul.* **111**:68. 1894.

An everbearing variety which originated a few years prior to 1894 with J. H. Robbins, Arcadia, Indiana; introduced in 1892 by Albertson & Hobbs, Bridgeport, Indiana. Plants vigorous, moderately productive; fruit small, round, black with considerable bloom between the drupelets, soft; good.

Woodside. 1. Fuller *Sm. Fr. Cult.* 144. 1867.

Of New Jersey origin, being grown from seed by a neighbor of A. S. Fuller, Ridgewood. New Jersey. Canes light crimson with few prickles; fruit very large, round, black with little bloom, sweet, juicy; good; autumn-fruiting.

Yellow Pearl. 1. Downing *Fr. Trees Am.* 974. 1869.

A yellow-fruited variety described by Downing. Plants vigorous, very productive; fruit dark yellow with slight bloom, sprightly.

Yosemite. 1. *Am. Hort. Ann.* 104. 1870. 2. *Cal. Bien. St. Bd. Hort. Rpt.* 233. 1885–86.

Mentioned in 1870 as a new variety from Alameda County, California. Plants very vigorous and very thorny; fruit large and of poor color.

CHAPTER V

THE EVOLUTION OF CULTIVATED BLACKBERRIES AND DEWBERRIES

The blackberries and dewberries under cultivation come from several species of Rubus. The common varieties of these two fruits are all natives of America and spring from American species of Rubus. Two little-known, but quite distinct var eties, Oregon Evergreen and Himalaya, grown for their fruit and as ornamentals, are introductions from the Old World. Both the blackberry and the dewberry are commonly cultivated only in North America, and here their culture is but begun, their history as we shall see, being the briefest of that of any of the small fruits Yet they have become in the few years of their domestication important garden and commercial crops in America, and their cultivation is spreading to other parts of the world. The chapter on the botany of bramble fruits shows that the several species of blackberries and dewberries are widespread on this continent, still little known, that some remain to be brought under cultivation, and that hybridization promises much.

Before further discussion of these two fruits it is necessary to distinguish as best can be done between the two. Cultivated blackberries are erect perennial plants bearing black or occasionally white fruits which do not separate from the juicy receptacle, the last-named character separating them from raspberries which fall from a dryish receptacle when ripe. Dewberries are usually distinguished in the garden from blackberries in being procumbent instead of erect plants. Foliage, flowers, inflorescence, and the many minor characters are various in the two types of fruit according to the several species to which varieties belong. Another distinction between blackberries and dewberries is usually found in the flower clusters of the two fruits. The lower or outer flowers in the blackberry open first and the inflorescence is therefore corymbose or racemose. In the dewberry, the center flowers open first and are few and scattered, so that the inflorescence is a cyme rather than a corymb or raceme. Still another distinction commonly found is that in nature dewberries propagate from tips whereas blackberries propagate from suckers.

THE DOMESTICATION OF THE BLACKBERRY

The blackberry, in one or another of its many species, is indigenous in most temperate parts of the northern hemisphere, and in this great zone

might almost be said to be at once the best and most abundant wild fruit. Their abundance is proverbial. Shakespeare says, "If reasons were as plentiful as blackberries." The abundance of the wild crop, no doubt, is the reason that in all the centuries of agriculture preceding the last no one took seriously to the task of breeding and cultivating any of the many wild blackberries and dewberries. The blackberry is about the commonest wild fruit of Europe and the fruit of some species is quite as delectable as that of our American blackberries, but usually the wild plants supply the demand, although now and then it is found under cultivation. The wild blackberry is often a vicious plant, thorny and self assertive, and the wild dewberry is both vicious and unmanageable, characteristics which have kept both fruits out of gardens.

The domestication of the blackberry began in the United States, though not until two centuries of prejudice had passed on the part of the pioneers from Europe. The blackberry was to the early settlers a briar, a bramble, a pestiferous weed difficult to get rid of and not worth cultivating when the wild fruits could be had in abundance. The early notices of blackberries in the first agricultural books and papers were chiefly discussions of how this vicious and persistent plant could be easiest killed and permanently kept down, with now and then a recipe for making blackberry wine which seemed to be highly esteemed by the colonists as a medicine and a cordial. No doubt plants were occasionally set in gardens but there were no named varieties, and there was no real blackberry culture for commercial purposes until the middle of the nineteenth century when several named sorts were introduced, and interest became keen in cultivating blackberries for home and markets.

William Kenrick in his *New American Orchardist*, 1833, seems to be the first writer on pomology in the New World to recommend the cultivation of the blackberry in a formal fruit book. McMahon, Coxe, and the two Princes, who had published earlier books on fruit growing in America, do not mention it although the other small fruits are discussed and the barberry, now seldom grown in gardens, received considerable attention. Kenrick[1] says of the blackberry: "A shrub rising to the height of ten feet, somewhat ribbed or angled and armed with hooked spines. The fruit, which grows in clusters, is oblong, an inch in length, of a shining black, of an agreeable taste, sweet or subacid and astringent. This plant thrives in a rich moist sandy loam, and is often cultivated in gardens, where its fruit is

[1] Kenrick, William *Am. Orch.* 336. 1832.

much improved in size and its crops very abundant." Under "Uses" Kenrick[1] adds: "The blackberry is considered a pleasant and wholesome dessert fruit if used with moderation; it is used in pies, tarts, &c. A jelly is made of the blackberry of considerable medicinal efficacy in nephritic disorders. It is singular that a fruit so productive as the tall blackberry should be so little cultivated. Both species may be propagated either from seed or from layers."

A still earlier reference to the blackberry as a cultivated plant is found in the *New York Gardener* in 1829, reprinted in the *New England Farmer*,[2] May, 1829. It is quoted to show the status of blackberry culture a hundred years ago:

"The Blackberry, or Bramble, one of our native shrubs, well deserves a place in the farmer's garden, and will liberally repay the expense of cultivation. It should be propagated and pruned in every respect like the raspberry, but being somewhat larger, requires more room. It is very much disposed to throw off young shoots from the roots, and unless great care is taken to destroy them, they will spread, and fill the ground, and soon make an impenetrable wild. But this is no difficult task, if the space between the rows is well wrought, and kept, as it ought to be, quite free from grass or weeds.

"The bramble, as well as the several kinds of raspberries, do not ripen their fruit at once, but in succession, for several weeks, as if designed to court our notice, and bountifully to reward the care we may bestow upon their cultivation, by a frequent offer of their bounties. The fruit should be regularly gathered as it comes to perfection, and be directly used after being picked; for although they may remain good on the bush a few days after being ripe, if kept in the house a single day, they will be found to have lost much of their delicious flavor.

"A plantation of these shrubs will come to perfection in three or four years, and if nursed as above directed, will continue fruitful for eight or ten years. It should then be grubbed up, and entirely renewed. Two years, however, before this, a new quarter for this fruit should be prepared."

One gathers from the account just published, and from similar items from the agricultural papers of the time, that blackberries came under cultivation little by little early in the nineteenth century. Probably the nurslings of nature could not supply the demand as cities, towns, and tilled fields destroyed the hedge-rows of wild plants. It was inevitable that sooner or later some one would attempt the cultivation of so delectable a fruit as the wild blackberry for the markets. The first attempt of magnitude

[1] *Ibid.* 337.

[2] *New Eng. Farmer* 7:351. 1829.

seems to have been made by Captain Josiah Lovett[1] of Beverly, Massachusetts. Under date of May 15, 1850, he tells his experience to the readers of the *Magazine of Horticulture.* His letter to the editor reads:—

"Dear Sir,— Always having been particularly fond of the smaller fruits, after preparing my grounds, and setting out a variety of strawberries and raspberries, about the year 1835, I turned my attention to the cultivation of the high-bush blackberry of our woods. At the season of ripening, I, for several years in succession, travelled through the woods of Beverly, Wenham, and Manchester, in the county of Essex, in search of such bushes as bore the largest and best berries; having noticed the most conspicuous in passing, I placed a stake by, or tied a string upon, each of them, and, returning early in the autumn, or on the following spring, I took up all the marked bushes and removed them to my own garden, or cultivated grounds; this experiment I followed for several years in succession, but in all cases made a very signal failure in the production of any fruit worthy of garden culture, and, I think, in 1840, gave up all hope of ever being able to grow this berry successfully. Several of my friends were no more fortunate in attempting to raise good fruit from canes procured from the woods of New Hampshire, and the trial was, for the time being, abandoned altogether. A year or two later, a cultivator from Dorchester exhibited some very fine fruit of the blackberry, at the rooms of the Massachusetts Horticultural Society, in Boston, and I immediately procured from him a few bushes, and, from that time to the present, I have succeeded in producing good fruit from this stock. I have now in cultivation several seedlings raised from this Dorchester stock that have produced fine fruit, but as yet, none better than the original, and the latter are no larger or finer than I have gathered, with my own hands, from the wild bushes in the woods in New Hampshire, or this vicinity. The variety I now raise is the one I originally received from Dorchester, and this is the only one I have seen cultivated successfully.

"I have planted the bushes in various positions on my grounds, and they have uniformly done well; but I think the largest berries and best crops have been produced on patches near the street, having the wash from the road passing over them. My ground is a strong loam, inclining to clay, over a subsoil of yellow stiff clay. I have given them no particular care, spreading a light coat of stable or pig-pen manure over them once a season, usually in the autumn. In regard to pruning, I have sometimes cut the tops off of the longest canes, so as to make them stand without stakes, and occasionally have staked them up; but I have found those left to trail on or near the ground have done best, and I now uniformly allow them to grow in this manner."

[1] "On the Cultivation of the High-bush Blackberry; with a Notice of the best Wash for Fruit Trees. By Capt. Josiah Lovett. Beverly, Mass." *Mag. Hort.* 16:261. 1850.

While Captain Lovett was attempting to subdue the wild subjects, only to find them untamable, two contemporaries had better success. Each found a plant less vicious and bearing abundantly fruits of larger size and better quality than the average run of vagrant plants of woods and fields. These, in turn, they brought under cultivation, and whether the plants were more manageable, or the men who found them more skillful in introducing them to garden civilization, both succeeded where Captain Lovett failed. The men were Lewis A. Seacor, New Rochelle, New York, who discovered the Lawton blackberry; and Eliphalet Thayer, who introduced the Dorchester. These were the first named varieties, and as such merit a fuller historical discussion than can be given in the brief historical notices in the chapter on varieties. Dorchester is usually said to be the first cultivated blackberry. It was the first named sort, but Lawton first came under cultivation as will appear in the histories which follow.

The accounts of the origin of the Lawton vary as given in the several horticultural magazines of the times but the facts seem to be these: In 1834, Lewis A. Seacor, New Rochelle, New York, found on the farm of a neighbor a clump of blackberries which bore fruits of large size and of different shape and flavor than any he had hitherto seen. Some four or five years later he transplanted several bushes from this clump to his garden. From these he supplied his neighbors with plants, and Seacor's blackberry became generally known in the vicinity of New Rochelle. Sometime in the late forties, William Lawton, also living in New Rochelle, became interested in this blackberry and began its sale under the name New Rochelle. Fortunately we have the story of the introduction of the new fruit as Lawton gave it in August 1853, at a meeting in New York of the Farmers' Club of the American Institute. Lawton's[1] account is so interesting and profitable that it is reproduced at some length.

"' *This Blackberry* — to which I have before called the attention of the Club — has been cultivated in small quantities for several years in New Rochelle, Westchester county, where I now reside. I have not been able to ascertain who first discovered the plant, and brought it into garden culture, but am informed it was found on the road-side, and from thence introduced into the neighboring gardens. As it came to me without any name to distinguish it from the *Wild Bramble*, I beg leave to introduce it to the notice of the Club as the *New Rochelle* blackberry, and at the same time present as a specimen a few quarts of the fruit, gathered this morning, precisely as they came from the bushes, without being selected.

[1] *Gen. Farmer* 15:157. 1854.

I have examined many works with a view to ascertain if there ever has been any improvement on the well-known wild varieties, but without success. The *Double Flowering*, *Dwarf* or *Dewberry*, *American Upright*, and the *White Fruited*, are all that are named. The *Dewberry* is the first to ripen, and the best flavored fruit. The *White Fruited* seems to be cultivated as a novelty more than for fruit. The *Upright* variety fruits late in the season, is of vigorous growth, and under favorable circumstances produces large, mulberry-shaped berries, but the seeds *are not thickly imbedded* in the pulp, and are so abundant as to impair materially the quality of the fruit. The blackberry seems to adhere to its original character with singular tenacity; or, from the many millions of plants which spring up from seeds annually distributed in almost every diversity of climate and soil, we should constantly find new varieties. Improving the wild plant by careful cultivation is one thing; to produce a new variety is another. The fruit now before you I believe to be of the last-named character. It is not like the *Dewberry*, or long and mulberry-shaped like the *Upright* blackberry, and *the seeds are so imbedded in a rich pulp as hardly to be noticed.* I think in shape and size they compare very well with the *Hovey Seedling* strawberry. The *New Rochelle* blackberry sends up annually large and vigorous shoots with lateral branches, all of which, under common cultivation, will be crowded with fine fruit, a portion of which ripens daily in moist seasons for six weeks, commencing about the middle of July. They are perfectly hardy, always thrifty and productive, and I have not found them liable to blight or injury by insects.' "

Accompanying the account was a large basket of the new blackberry, many of which, according to the reporter of the meeting, who evidently had a vivid imagination, were three or four inches in circumference. But at any rate the fruit and the talk of the introducer so pleased the club that they voted to change the name of the berry from *New Rochelle* to *Lawton*, an action provocative of great agitation in the two leading horticultural organizations of the country for over a decade. The Western New York Horticultural Society held that the first name, *New Rochelle*, should stand in accordance with the rule of priority, and in 1856 a formal vote was passed to emphasize its position. Later, in the same year, the American Pomological Society voted that the berry should be called *Lawton.* Might not right prevailed, and more and more the berry became known as *Lawton.* It remains to be said that for twenty years following its introduction, Lawton was the leading blackberry of the country, displaced in popularity by Kittatinny in the early seventies.

The history of the Dorchester, first named among its kind, is scarcely less complicated than that of the Lawton. Two men are credited with its

introduction, and it was at first grown under two names. August 7, 1841, Eliphalet Thayer, Dorchester, Massachusetts, exhibited a blackberry at a meeting of the Massachusetts Horticultural Society which attracted the attention and excited the wonder of all who saw it by reason of its large, handsome, and well-flavored fruits. It seems to have been introduced under the name *Improved High-bush Blackberry* and to have been grown under that appellation for some twelve or fifteen years. It was so called in the letter to the *Magazine of Horticulture*, by Captain Lovett, quoted on a previous page. Toward the end of the fifties, however, with no one in particular as sponsor for the name, by common consent, because shorter, the name *Dorchester* came into universal use for this fruit. Because prominent in bringing it to the attention of fruit growers, Captain Josiah Lovett was, in the early history of the plant, often credited with having discovered and introduced the Dorchester.

Two other landmarks stand out in the domestication of the blackberry. One was the discovery in 1854, at Burlington, New Jersey, of the Wilson; and the other the discovery of the Kittatinny in the mountains of the same name in New Jersey in 1865. Wilson ripens just after the raspberry season and therefore filled a space almost unoccupied by a hardy fruit, thereby giving fruit growers an opportunity to keep labor and equipment in use continuously. The berries were larger than any before seen, excellent in flavor and were borne in prodigious quantities. The advent of this variety gave blackberry culture a new and tremendous stimulus so that it began to take rank as one of the prominent fruit industries. The introduction of the Kittatinny gave the industry a push in another direction. Until its introduction all named varieties had been so tender to cold that their culture was uncertain in any region where raspberries were grown and quite limited in northern range. Kittatinny was hardier than any, of good flavor of fruit, and all plant characters were satisfactory.

Varieties now began to appear in rapid succession, some of them notable improvements over the sorts that have been named, and several new types appeared. They came as chance plants found in woods or fields; from seed sown to obtain new varieties; and a little later blackberry breeding began through crossing varieties and hybridizing the several species of blackberries and dewberries. The histories and pomological characteristics of all varieties must be looked for in the chapter on varieties, while the botanical characteristics and relations are given in the chapter on the botany

of bramble fruits. There are, however, a few types markedly different from the blackberries commonly cultivated that need further discussion.

WHITE BLACKBERRIES

Among the first varieties of blackberries introduced were several white variations, one of which, the Needham, introduced about 1850, was grown for several years rather widely. From that time to this nurserymen have advertised albino sorts, none of which, however, have ever become more than garden curiosities. The plants as a rule, lack vigor and the berries are never quite up to the mark in size or flavor. The stems throughout are usually greenish yellow, and the fruits are small and creamy white or amber colored. These sports seem to be most common in *Rubus allegheniensis* but occur in other species as well. They are not uncommon in wild plants, and few who have had much experience in picking the wild fruits have not chanced upon clumps of the white form growing among the normal blacks. There seem to be no records of white blackberries in breeding experiments. There has never been a white variation among the several hundred crosses and hybrids grown on the grounds of this Station.

THORNLESS BLACKBERRIES

From the beginning of attempts to domesticate the blackberry, growers have been looking for a thornless sort. A blackberry plant in its armament of thorns is the most vicious inhabitant of the fruit farm. Clothes, hands, and temper suffer in blackberry picking Now and then thornless mutations are found among wild plants, and several thornless varieties have been offered by nurserymen. None, however, have proved of much value in the garden. Of the dozen thornless varieties that have been grown on the grounds of this Station, thornlessness has been correlated with two serious defects,— small, poorly flavored fruits, and plants tender to cold. The plants of all have been exceedingly vigorous, but none have been noteworthy for productiveness. It remains to be said that one wild species, *Rubus canadensis*, long known as *Rubus millspaughii*, is thornless or nearly so. There are not as yet cultivated varieties of this species, but it is being used as a parent at this Station in crosses with cultivated sorts with the hope that out of the progeny, which has not yet fruited, a thornless sort better than those that have yet appeared may arise. Bailey[1] gives an interesting account of this species which we reprint in part.

[1] *Agric. Sci.* 6:66. 1892.

"A peculiar bush blackberry, with long wand-like canes, and entirely destitute of thorns, was collected a year or more ago by Dr. C. F. Millspaugh in West Virginia, at an altitude of 3,500 feet. It appears to be specifically distinct from the common bush blackberry, and it has recently been described as a new species by Dr. Britton under the name of *Rubus Millspaughii* (*Bul. Torrey Bot. Club*, **18**:366, 1891). Dr. Britton knew no other specimens than those of Millspaugh, except a single leaf of it in Linnaeus' herbarium, in London, collected by Kalm over a century ago. I am inclined to think, however, that the species is generally distributed over the northeastern states. I have recently had good specimens of it from the highest mountains of the Smoky range, North Carolina, above 6,000 feet, collected by Chas. A. Kofoid and Mr. Beardslee. In Walter Deane's herbarium, at Cambridge, Mass., there is a specimen of it from Ice Gulch, Randolph, N. H. (White Mountains), collected by J. R. Churchill in 1889, and Mr. Deane says that there is another specimen in the Gray herbarium from the Keweenaw peninsula, Lake Superior, collected by J. W. Robbins many years ago. I have had canes of a perfectly smooth blackberry sent me from northern Michigan (near Grand Traverse), and I have no doubt that they belong to this species, as the angular and furrowed, perfectly smooth canes of *Rubus Millspaughii* are easily distinguished from those of the common blackberry. From all these records, it would appear that the species occurs upon our northern borders, and that it follows the mountains southward; and this accounts for the finding of the specimen by Kalm, who traveled in Canada.

"Now, as the canes of *Rubus Millspaughii* are perfectly thornless, it is important that horticulturists should turn their attention to the species if it gives any promise of good fruit. The so-called thornless blackberries of gardens are only comparatively unarmed forms of the common blackberry. The person who sent me the thornless canes from northern Michigan said that the fruit is good. Mr. Kofoid, who collected the specimens in North Carolina, sends me the following note: 'It seems to be very abundant where it occurs, forming dense thickets of upright stems five to eight feet in height. As late as the 29th of August we found the fruit just turning a faint reddish tinge, and quite palatable and sweet to a hungry man. Natives say that the fruit becomes ripe and black in September. The berries are large, long and slender and very sweet, lacking the sharply acid or bitterish quality of the berries of the lower mountains. There are no thorns or prickles. One can go through the patches unscathed. You may, however, find a few minute prickles on the mid-vein, generally of the terminal leaflet.' This is certainly a promising account.

"There are several botanical characters which distinguish this species from the common blackberry, aside from the absence of thorns. It lacks almost entirely, except on some of the young shoots, the conspicuously

pubescent character of the common species. The leaves are thin and the leaflets are sharply toothed and prominently long-pointed. One of the most prominent characters lies in the leaflet-stalks. Upon vigorous shoots the leaflets are five, and the three upper ones have stalks from one to two inches long."

THE SAND BLACKBERRIES

Two species of southern Rubi pass under the name Sand blackberries. These are *Rubus cuneifolius* and *Rubus probabilis*, similar and yet quite distinct. (For botanical differences see these species in Chapter II.) Several varieties belonging to one or the other of the species have been grown on the grounds of this Station in the last twenty years. These are Topsy, Perfection, Nanticoke, and Robison. None have value this far north. The plants of these varieties are of medium size, erect, stiff, and bear the most wicked thorns of any of the cultivated brambles. The berries are small, but the drupelets are large, hang together poorly, but cling quite too tenaciously to the receptacles. The berries have the reputation in the South, as they grow wild, of being well flavored, but transplanted to the garden, especially this far north, they are sour, insipid and worthless. The histories of the varieties just named, as given in Chapter VI, must serve as an account of the domestication of the Sand blackberries.

THE OREGON EVERGREEN BLACKBERRY

It is not improbable that the Oregon Evergreen blackberry was the first variety of this fruit to be cultivated in America. The writer, in 1897, as horticulturist of the Oregon Experiment Station, found this blackberry widely distributed and commonly cultivated in Oregon, Washington, California, and the Rocky Mountain States, under the name *Oregon Evergreen*. In the far west it is one of the most remarkable of all small fruits. Its product is seldom found in the markets, but it supplies countless homes in town and country with a very agreeable and acceptable small fruit from the normal blackberry season in July through the summer until late October. It cannot be grown successfully east of the Rocky Mountains without winter protection in the North and much coddling in hot summers. But even so, because of its enormous productiveness and the everbearing habit of the plants, it is a most promising fruit for hybridization with other blackberries. It is offered by eastern nurserymen under various names, the most common of which are Evergreen, Everbearing, Cut-leaved, Atlantic, Star, and Wonder, varieties which do not differ greatly, if at all, on the grounds of this Station from the old Oregon Evergreen.

The canes are trailing or climbing, often attaining a length of 40 or 50 feet, viciously armed with large thorns, thick and rigid at the base. The plant is almost unmanageable as a cultivated subject, but lends itself admirably as a covering for arbors, porches, fences, and outbuildings. Unfortunately it suckers and spreads so rapidly as to often become a nuisance. The leaves are much divided, well shown in the color plate of this variety, from a plant growing at Geneva, New York. Three remarkable characters make it unique among its kind. It is evergreen; its season of ripening often covers three months; and it bears enormous crops. Three plants are on record at Corvallis, Oregon, which bore in one season 40 pounds each. The berries are of medium size and of attractive appearance, but fall below most cultivated blackberries in quality because of a coppery taste and very large seeds.

There is now no question but that the Oregon Evergreen came originally from the Old World, and that it is a form of the common European blackberry *Rubus laciniatus.* (See the description of this species on page 83.) But the letters to be submitted show that the plant was introduced into Oregon from some of the South Sea islands at an early date in the history of Oregon. Of all brambles, it seems to be one of the most persistent and self-assertive, rapidly becoming a pest in climates where it thrives as in some of the islands of the southern seas and on the Pacific Coast. The following letters written to the senior author[1] in 1897, and published in Bulletin No. 64 of the Utah Agricultural Experiment Station, form an interesting account of this berry in Oregon.

"Replying to your favor of recent date, I beg to say the Evergreen Blackberry originated in the South Sea Islands, where it grows spontaneously in the wild woods. A Frenchman brought some of them to Oregon and we got plants from him, and have raised and sold them extensively ever since all over this coast, until they have spread even to the Eastern States. We consider them equal in size and quality or flavor to the Lawton, and very much more productive, as a single plant will, when in good bearing, supply an ordinary family with fruit. We raise them from root cuttings or suckers. They do not ripen as soon as the Lawton, but when they begin to bear, continue to do so until cold weather comes on."— H. W. Settlemire, Tangent, Oregon.

"We have yours of a late date and replying to same will say: We do not know the origin of the Evergreen Blackberry. Have tried to trace it but have never been able to get any reliable information. It has been

[1] *Utah Sta. Bul.* 64:51–54. 1899.

here from the pioneer days, and can now be found growing wild in the woods. It is a very hardy plant with us, but does not do well in dry unirrigated soil. Requires a wet soil and moist climate to thrive. We have sent quite a few of them into the Eastern States, but do not know what success the planters have had with them.

"They are propagated from either tips or cuttings, also from suckers. There is nothing to beat them suckering. It is one of our best berries for home use, but does not stand shipping. Very prolific bearer, medium sized berry with abundance of seeds."— J. H. Settlemire & Son, Woodburn, Oregon.

"I cannot give you the information you requested in regard to the origin of the Evergreen Blackberry. I can tell you about the plants, however. They are very hardy and very productive and now grow wild, or in out-of-way places in many localities. I have noticed this especially along the ocean coast. They are full of briars, hence the berries are rather hard to gather. They are good but not equal to several of our cultivated varieties. They bear all summer in enormous quantities, have large seeds with beards which are rough in the mouth. The juice is of good flavor. They are nice for manufacture of jelly."— O. P. S. Plummer, Portland, Oregon.

"In answer to your note of request regarding the so-called Oregon Evergreen Blackberry, I think it is not a native of Oregon, but that it was brought from Australia to this country in the first settlement. This is all I can find regarding its origin. The quality of the berry is good but is so late that it is not raised very extensively for market. It requires plenty of water to perfect its crop. As for its propagation, it is usually from tips or suckers. On cultivated land in this country it becomes a nuisance, and will spread rapidly if any roots are cut or broken."— W. J. Magoon, Portland, Oregon.

"When I came to Oregon, about twenty-five years ago, the Evergreen Blackberry appeared to be an old settler here. I am unable to give you any information of the origin. It is not much thought of here as a money-making fruit."— H. Freeborough, Montavilla, Oregon.

"In regard to the Evergreen Blackberry: I am unable to give you very much information, although I have the variety and it is a very fine blackberry. I have known it for at least thirty years."— H. J. Geer, Core, Oregon.

THE HIMALAYA BERRY

In the early nineties Luther Burbank introduced a blackberry which he called the Himalaya Giant. His stock originated from seed sent him from "high up on the Himalaya Mountains in 1889 or 1890." In 1893 he relisted this berry "as an improved variety of *Rubus sp. Himalaya*,"

but a few years later the name was again changed to that given above. Later the plant was sent out by other nurserymen as the Himalaya berry and as Giant Himalaya. It now turns out that this blackberry is a form of *Rubus procerus* (see discussion of this species page 84), a well-known blackberry in Europe, and that a garden variety, almost if not identical, had been introduced in Germany in 1889 under the name Theodor Reimers.

The Himalaya berry has now been thoroughly tested in all the fruit regions of North America and is regarded as of commercial importance only in very restricted areas on the Pacific Coast, notably about Puget Sound, Washington. Several very distinct varieties have been sold under the names given, probably through the interchange of labels, for the true Himalaya is distinct in nearly every character. The value of this blackberry, and any of its variations, if such there be, will probably be limited by several very marked faults: The plants lack hardiness in the blackberry regions east of the Rocky Mountains; under cultivation it is about the most unmanageable of all brambles; the plants are nowhere very productive, and in the East are markedly unproductive; and the berries are everywhere inferior in size, appearance, and quality. Plant and fruit are fully described in the chapter on Varieties of Blackberries.

HYBRID BLACKBERRIES

The various species of blackberries are becoming hopelessly confused in their cultivated varieties through cultivation. Card, in his *Bush-Fruits*, 1898, and Bailey, in *The Evolution of our Native Fruits*, 1898, were able at the time they wrote to classify blackberries in several well-marked groups, as Long-cluster, Short-cluster, Leafy-cluster, and Loose-cluster varieties. Such grouping is no longer tenable. Descriptions of 133 varieties of blackberries grown on the grounds of this Station, fail to fall into these groups and fail in many cases to fall into species. Hybridization, especially in kinds brought out in recent years, has completely upset man-made classifications. In the chapters on the botany of the blackberry and on varieties, many known and supposed hybrids are named, so that it must suffice here to make a general statement showing the limits so far reached in the hybridization of blackberries with other fruits.

There are many hybrids recorded between blackberries and dewberries, not a few of which are described in this text. Mahdi, a garden bramble, is a hybrid between the European blackberry and the European red raspberry. Mammoth is said to be a hybrid between the blackberry and the

western dewberry. Laxtonberry is recorded as a hybrid between the loganberry and the Superlative red raspberry. The Van Fleet raspberry is a hybrid between a Chinese bramble and the Cuthbert raspberry. The sorts so far named are hybrids under cultivation which have more or less commercial value. Untold numbers of similar hybrids have fallen by the wayside in attempts to breed new brambles. A statement of what has been done at this Station in crossing brambles in the last fifteen years shows some of the possibilities of hybridizing bramble fruits.

In the work of breeding new brambles at the New York Agricultural Experiment Station, eighteen species have been intercrossed. Willingness to interbreed may be put down as a characteristic of Rubus. Few, indeed, of the species of Rubus have refused to interbreed with another species or with several other species. The violence of the cross is often remarkable. The red raspberry is easily hybridized with the blackberry or with the large-flowered and very distinct *Rubus odoratus*. Many new sorts have arisen in the last few years, and the work of interbreeding brambles is certain to prove productive of great numbers of new types, some of which will be barren, and at best most will be but curiosities, but now and then a new type of value is almost certain to be bred.

DEWBERRIES

Considering the many merits of dewberries, as compared with other bramble fruits, they have found a place in popular favor exceedingly slowly. As compared with the fruits of blackberries, those of dewberries are usually larger, sprightlier, juicier and, all in all, handsomer and more delectable. The crop of most sorts ripens earlier, and over a longer season than that of blackberries, and the plants are usually more productive. While dewberries may not be hardier than blackberries, the plants are more easily protected so that there should be less winter killing. Yet despite these advantages, no one undertook the domestication of dewberries until long after the blackberry was established in the fruit plantations of the country, the reason being, without doubt, that a dewberry plant seems hopelessly unmanageable, although when the knack of training is learned it is as easily managed as a blackberry.

Dewberries are mentioned many times as promising subjects for domestication by pomological writers early in the nineteenth century, but no one seems to have undertaken the task until the early sixties. A Dr. Miner, Honeoye Falls, Monroe County, New York, seems to have

established the first landmark in dewberry domestication. Dr. Miner planted seeds of a wild dewberry about 1854. From a great number of plants he saved two which he propagated and distributed. This first breeder of dewberries seems to have been too modest to tell his own story, but it is admirably told by Joseph Harris,[1] one of the good agricultural writers of his time, in the *Genesee Farmer* for 1862. It is seldom that the first steps in domesticating a plant are so well told, and Harris' article, containing an account of the method of breeding, the result, a description of the two new varieties, the method of culture, and an estimate of the new fruit, is republished in full.

"It is with much pleasure that we are enabled to lay before our readers some facts in reference to a fruit which promises to be of high value, both to the amateur cultivator and the market fruit-grower. For sometime we have been aware that Dr. Miner, of Honeoye Falls, in this county, was the originator of a seedling Dewberry, but as the Dr. has been desirous to fully prove the success of his undertaking before allowing it to be much known, our attention has been but little attracted to it until the present season.

"A present of two baskets of this fruit — two distinct varieties — and an invitation to come and see for ourselves, and we must not omit the fragrance of those two baskets of fruit nor the pleasure we enjoyed in eating them with our friends, awakened a latent curiosity to see, to feel and to handle the fruit on the plants — to learn of their mode of growth, their cultivation and their history.

"Without detaining our readers with the details of our pleasant visit, we will mention what we saw and learned of the new fruits, for as we have intimated the Dr. has succeeded in raising two seedlings of superior merit. These seedlings were originated six or eight years ago, from seed of the common wild Dewberry, or low Blackberry. Among a great number of plants which were produced and kept in cultivation until they showed their fruit, two only showed signs of merit, which were very decided; all the other plants were discarded, and these two were cultivated with care for several years to see if their apparent characters were real and permanent. Fortunately the desires of the experimenter have been fully realized, and several years of continuous fruiting has firmly established their value.

"As all our readers may not be acquainted with the habits of this plant, we will briefly state its distinguishing traits.

"The slender stems, about a quarter of an inch in diameter, trail along the ground extending from the root to a distance of ten or fifteen feet — a vigorous plant produces a score or more of these stems each season.

[1] *Gen. Farmer* 23:351. 1862.

"The stems are furnished with a very few small thorns, and trifoliate leaves; the leaflets are about an inch and a half long and half as wide, of a light green color; leaf stem from one to two inches in length and a little prickly.

"The fruit is borne on slender stems two or three inches in length, is shining, jet black, fragrant, sweet and juicy. Most of the fruit in a wild state is imperfect, developing a drupe only here and there over its surface; cultivation of the wild plants does not in the least improve this habit, according to Dr. M. The seedlings to which we now direct attention have not this fault of the wild type, but are fully developed in every case — their size is very large, nearly or quite equalling the best specimens of the New Rochelle blackberry. In quality and flavor they are far superior to any blackberry known, and are very prolific and hardy.

"The plants propagate themselves by striking root at the ends of the shoots, and never throw up any suckers.

"The plat of ground which Dr. M. has devoted to these fruits, is about one-eighth of an acre. The plants are set out about five feet apart in squares; early in the spring a pole or stake is driven down by the side of each plant, standing five or six feet high, around which the fine, long, flexible shoots of the previous year's growth are wound, and fastened by a string, tying them at the top, thus forming a kind of cylinder or cone. By this mode of training, the fruits hang outside, clear of the foliage all around, affording the greatest facility for gathering. The new growth is allowed to trail on the ground until the succeeding spring.

"The plants do not occupy much space, and three feet each way would be ample room to allow them.

"We judged that the plants produced about two quarts of berries each.

"The two varieties are distinct from each other in fruit and foliage and period of ripening. The early variety is more fragrant and sweeter than the later one, and at the date we saw them (Aug. 5th) was nearly gone, while the other was just in perfection. It will be seen, therefore, that both varieties mature earlier than either the Dorchester or New Rochelle blackberries, which are now (August 20th) at the height of their season.

"As the originator of these fruits has already parted with some of the plants to different individuals, they will probably be spread through the country from several sources, and as no names have been used to distinguish the varieties, it is possible that some confusion may arise in reference to this matter, and we will notice that the edges of the leaves of the early kind are dentate or doubly dentate, while those of the later variety are sharply serrate.

"We think it desirable that the term Dewberry should be used to designate these plants, instead of Blackberry, as their mode of growth is so entirely different from the high Blackberry.

"In conclusion, we will state that it is our conviction that these fruits will meet with a cordial reception by the public, and for private gardens be preferred to the rank-growing high blackberries; in the market they will readily command a higher price than any other blackberry, but as their season is so much earlier they will not come greatly into competition. For a table fruit they are very fair — sweet, juicy and luscious — no setting of the teeth on edge."

Little, however, seems to have come from Dr. Miner's dewberries. They were discussed in the Fruit Growers' Society of Western New York; mentioned in several of the agricultural papers of the country and even received some praise in the *Gardeners' Chronicle* published in England. But Dr. Miner did not push the sale of plants and eventually they seem to have been lost sight of although more or less cultivated for twenty or thirty years under the name *Miner's Seedlings*.

The first dewberry to receive wide recognition seems to have been the Bartel, brought to notice by Dr. Bartel, Huey, Clinton County, Illinois. L. H. Bailey,[1] who has given the early history of dewberries much attention, gives the following history of the Bartel in a bulletin of the Cornell Experiment Station.

"The story goes that the plants appeared in an old cornfield upon his farm, and some of the berries were so large that he conceived the idea of selling plants. He procured a lithograph of the berries — which did ample justice to the fruit,— described the methods of growing them and for a time disposed of considerable stock. The introducer was an old man at this time and was one of those clever and picturesque individuals who often lend an interest to a neighborhood. The first printed record of this berry appeared in December, 1875, in Purdy's *Fruit Recorder* (p. 182). This is a communication from 'T. C. Bartles, of Clinton Co., Illinois,' and is headed 'Bartles' Mammoth Dewberry.'[2] The description of the berry runs as follows: 'This is a very fine berry, ripening from the last of June until the middle of August. The fruit is very large, rich and juicy, slightly acid, but not so sour as the blackberry. When ripe it is black, and is sufficiently solid to bear shipment with safety. I have had berries over two inches in length and one inch in diameter. They are a perpetual bearer, from the time they begin to ripen (in ordinary seasons) until the last of August — having blossoms on the same vine simultaneously with the ripe fruit. They are very prolific, yielding in a fair season from sixty to eighty

[1] *Cornell Sta. Bul.* 34:300. 1891.

[2] The name of this dewberry is variously written Bartle, Bartles', Bartell and Bartells', but I have the evidence of a neighbor of the introducer, who is now dead, that he spelled his name Bartel. Perhaps the orthography of the name may have been confused because of another family in Clinton County which spells its name Bartels.

bushels to an acre. They do not blossom until late in the spring — later than the strawberry — the fruit maturing in from four to six weeks after blossoming — hence they are seldom if ever injured by late frosts in the spring. They are very hardy — having succeeded as far north as Wisconsin and the northern part of Iowa.' An account of methods of cultivation is then given. 'I shipped some of my dewberries to New York city from this place for which I received sixteen dollars per bushel. I also shipped to Rockford, Ill., St. Louis, Mo., and to Independence, Iowa, for which I received twelve dollars and eighty cents per bushel; while the highest price paid for straw-berries did not exceed, on an average, six dollars and forty cents per bushel. I consider the dewberry the most profitable fruit raised.' Mr. Purdy gave roots of this dewberry as a premium to his paper at this time, and among those who obtained it were I. N. Stone, of Fort Atkinson, Wisconsin, and Hon. B. F. Adams, of Madison, Wisconsin, the only persons, probably, as Mr. Stone writes me, 'who had sufficient confidence in it to give it a fair trial.' Mr. Stone has made a marked success of its culture, and all the plants set in recent years appear to have come directly or indirectly from him."

The Bartel, while probably the first dewberry to receive a name, was not the first one to be grown commonly and largely by fruit growers. That honor belongs to Lucretia, long the standard commercial sort and still a favorite. We must again go to Bailey[1] for the first full historical account of this berry. He says:—

"The story of its discovery and introduction is told me by B. F. Albaugh, of Covington, Miami Co., Ohio, who introduced it to the trade. A young man named Williams enlisted in the civil war from Miami Co., Ohio. During most of his service he was stationed in West Virginia, part of the time near Beverly. While guarding private property there he became acquainted with the woman who afterwards became his wife. He settled on her plantation after the war, and upon it found the dewberries growing wild. He transplanted some to his garden, and these attracted the attention of his father who visited him in 1875. The following year plants were sent to the father in Ohio and they were distributed among a few friends. The plants were carelessly dug, however, and only five of the genuine variety happened to be in the lot and these, along with many worthless ones, chanced to fall into the hands of Mr. Albaugh. From these five plants the present stock has sprung. When the variety was offered for sale Mr. Albaugh named it Lucretia, for Mrs. Lucretia Garfield. Mr. Albaugh tells me that the five original plants are still vigorous and fruitful. A portion of one of the original plants — about one-ninth of it — was exhibited at the Association of American Nurserymen at Washington in

[1] *Cornell Sta. Bul.* 34:287. 1891.

June, 1886. This specimen bore 978 berries. E. Y. Teas, now of Irvington, Indiana, appears to have been the first to figure and offer for sale the Lucretia."

From time to time other dewberries appeared of greater or less value, but the dewberry remained until the beginning of the present century a suspicious inhabitant of the fruit plantation. Its vicious thorns and unmanageable canes condemned it, and, as with all new fruits, the presumption was against an unfamiliar plant in cultivated grounds, especially when its near of kin have been troublesome intruders from fence rows and forests. And so, although several interesting forms of the common or northern dewberry appeared before 1900, it was not until this date or after that dewberry culture began to take form as one of the small fruit industries of the country. Several quite distinct types now came under cultivation, some of which must be mentioned, but the reader must turn to Chapter II on the botany of this fruit for a full list of the species of dewberries now under cultivation.

The dewberries so far discussed belong to the northern states, or more accurately the northeastern states and may be roughly lumped into the northern dewberries. About 25 varieties belong here. Perhaps as many more sorts, mostly of comparatively recent introduction, belong to the southern dewberries, and nearly as many more to the western dewberries. The botany of the three groups is little understood. Several species are involved, accounts of which have been given in previous pages. It must suffice here to give a brief sketch of the introduction of a few of the earliest and most prominent varieties from these widely separated parts of North America.

SOUTHERN DEWBERRIES

The southern dewberries are for the most part evergreen or nearly so and rather more prostrate than the northern varieties. Bailey names the following dewberries as coming from southern species:[1] Bauer, Drishill, Eight Ells, Extra, Houston, Howard, Lime Kiln, Long Branch, Lost Ball, McDonald, Manatee, Muchee Grandee, Race Track, Rockledge, Rogers, White (from Louisiana) and Wilson's (from Texas). Of these seventeen southern sorts, only Manatee, McDonald, and Rogers have been tried on the grounds of this Station. No one of the three have been sufficiently hardy, vigorous, or productive to merit recommendation for any purpose in the North. As will be seen from the histories in the chapter on varieties,

[1] Bailey, L. H. *Gent. Herb.* 170. 1923.

of all of which an account can be found, most of these southern sorts have been brought in from the wild or are chance seedlings, and none have achieved pomological prominence. It is doubtful if more than three or four of the above list could now be obtained so short have been their popularity. Nevertheless some are promising and as their breeding progresses, southern dewberries may be expected to play an important part in the pomology of the South.

WESTERN DEWBERRIES

Two types of dewberries have come from the Pacific slope. One type is best represented by the loganberry and the other by Mammoth. The introduction of the loganberry is a landmark in the history of small fruits. Its discovery, introduction, rise to a popular and standard product, and adaptation to several commercial uses, are about the most engaging events in modern pomology. An enigmatical origin adds interest to this remarkable fruit. Its value to pomology is much greater than the intrinsic worth of the variety, for it has inspired breeders of small fruits to produce something similar or better to the end that a dozen or more valuable small fruits have appeared as emulations of the loganberry and one sees in the future a great array of loganberry-like varieties.

What is the loganberry? It originated in California, as we shall see, from the seed of what the Californians call the wild blackberry. Called after its originator, it became the Logan blackberry, a name favored by workers in the United States Department of Agriculture and in many experiment stations. But the parent plant was a dewberry as pomologists and botanists usually use the word, and "blackberry" is a confusing misnomer. For some years after its introduction, the loganberry was supposed to be a hybrid between the red raspberry and the dewberry of California, and the name "blaspberry," a word made by substituting the first two letters of "blackberry" for the first letter of "raspberry" was proposed. This name, an unfortunate suggestion, met with small favor and is now seldom heard. Meanwhile, by common consent, "loganberry" as a group rather than a varietal name, has come into general use. So much for the name, now greater detail as to the origin of the loganberry must be given.

Fortunately there are several accounts of the origin of the loganberry from its originator, Judge J. H. Logan, Santa Cruz, California.

The best of these seems to be contained in a letter written to L. H. Bailey[1] in 1902. The letter reads:—

"In August, 1881, I planted the seed of the common wild blackberry or dewberry, of California, botanically known as the *Rubus ursinus*, gathered from plants on one side of which was growing a kind of evergreen blackberry known as the Texas Early, and on the other side of which was growing an old variety of red raspberry. The Texas Early has a growth of cane and leaves similar to the Lawton, although much less vigorous, and in our mild climate is growing winter and summer. It has a small round berry of more acidity than the Lawton and probably of poorer flavor. The raspberry referred to has been growing in this place for the last forty years and I am unable to ascertain what variety it is, although it is of a type similar to the Red Antwerp. It is not, however, the Red Antwerp as we have been growing it here. From this seed there grew about one hundred plants which were cared for and planted out in the ground. In the summer of 1883 these plants fruited and there appeared one plant which was undoubtedly a cross between the raspberry and the *Rubus ursinus*. The fruit was larger and earlier than the raspberry or any blackberry, except the *R. ursinus*, ripening about the middle of May; the appearance of the berry on the surface was something like the raspberry, being less indented and of more even surface than a blackberry; the color a bright glowing red, becoming very dark and finally, when dead ripe, of a dull purplish-red color. The berry has a core like the blackberry and parts from the calyx the same as a blackberry. The leaves of the vine are almost identical with the wild Rubus, being somewhat larger. The canes are also like the wild Rubus only larger and more vigorous. It has the same small sharp spines, and like it, is without adventitious root buds, but multiplies from the stolons or tips and from seed. The fruit, when cooked, has the same rich acidity as the wild Rubus, there being only a suggestion of the taste of the raspberry in the cooked fruit, but in the jelly there is a more decided raspberry flavor. This red berry is universally known here as the Loganberry."

In Judge Logan's letter he says the original loganberry plant "was undoubtedly a cross between the raspberry and *Rubus ursinus*." For some years after the introduction of the new fruit, botanists and pomologists accepted this theory of hybridity. Later, the concensus of opinion of workers in pomology and botany was that the loganberry is but a variety of the western dewberry. Bailey, however, who has long been a student of the wild and cultivated bramble fruits, says in the reference given "I am strongly inclined to the opinion that the loganberry is a hybrid, as supposed in the beginning." Then follow several reasons for his belief. Berger,

[1] *Gent. Herb.* 155. 1923.

botanist at this Station, who has done the botanical work for this text, after a painstaking study of herbarium specimens of this and related varieties and species, believes loganberry to be a red sport from the black dewberry, *Rubus ursinus*.

The loganberry has been used at this Station in hybridization but the results, as yet, contribute little to show whether this fruit is a hybrid or a pure-bred dewberry. The only phenomenon noted on these grounds is, possibly, collateral evidence toward the theory of hybridity. The red raspberry has been hybridized with several species of Rubus. In most of these hybrids the raspberry seems completely submerged. Hybrids between it and the loganberry, Mahdi, the wineberry, and the large-leaved flowering raspberry of the East, show almost no trace of the red raspberry in the first generation; subsequent generations prove hybridity. One might reasonably suspect, therefore, that the loganberry may be a red raspberry hybrid even though the raspberry shows but little in plant or fruit of the loganberry. Nevertheless, with the evidence from all sources at hand, it seems most probable that the loganberry is a red-fruited sport from the western dewberry.

The loganberry is now commonly found in home and market gardens of all the Pacific States, whence large shipments are made of fresh fruit to the East. The berries are evaporated and make a valuable dried fruit; large quantities are canned; it is a splendid fruit for jams and preserves; and a large part of the crop is now used for a non-alcoholic drink. Propagation, culture, pruning, training, and harvesting are not more difficult than with other bramble fruits and the yields are high.

Western dewberries are represented by a score or more noteworthy varieties other than the loganberry, of which some of the most promising are related to this most important variety. Of the loganberry-like sorts, Laxton, Mahdi, Mammoth, Phenomenal, and Primus are best known. Aughinbaugh, Belle of Washington, Skagit Chief, Washington Climbing, Cory Thornless, and Gardena, are other derivatives from western species of dewberries.

MAGNITUDE OF THE BLACKBERRY AND DEWBERRY INDUSTRY

Figures showing the magnitude of an industry are always interesting, and in studies of marketing and of fruit regions are often valuable. Table 2 from the Fourteenth Census, taken in 1919, shows the magnitude of the blackberry and dewberry industry in the United States at the date of the

census. For some reason, those in charge of the census combined the loganberry with raspberries rather than dewberries, allowance for which must be made in interpreting the figures in the table that follows.

TABLE 2. ACREAGE, YIELD AND VALUE OF BLACKBERRIES AND DEWBERRIES IN THE UNITED STATES IN 1919, BY DIVISIONS AND STATES

DIVISION AND STATE	Acreage	Yield (in quarts)	Value
UNITED STATES	46,165	39,945,078	$7,117,972
Geographic Divisions:			
New England	1,010	790,102	$176,400
Middle Atlantic	5,306	4,608,673	906,539
East North Central	9,301	6,721,886	1,277,163
West North Central	7,891	4,422,115	806,032
South Atlantic	4,638	2,829,944	436,995
East South Central	3,954	3,128,749	421,919
West South Central	9,188	8,722,827	1,543,180
Mountain	378	341,525	76,060
Pacific	4,499	8,379,257	1,473,684
New England:			
Maine	282	242,478	$53,346
New Hampshire	141	90,666	20,854
Vermont	120	113,210	24,904
Massachusetts	340	251,951	57,949
Rhode Island	7	6,428	1,415
Connecticut	120	85,369	17,932
Middle Atlantic:			
New York	1,880	1,711,546	376,541
New Jersey	1,950	2,045,521	368,193
Pennsylvania	1,476	851,606	161,805
East North Central:			
Ohio	1,678	1,481,447	281,476
Indiana	1,965	1,087,317	195,716
Illinois	3,061	1,365,223	245,741
Michigan	2,165	2,452,909	490,580
Wisconsin	432	334,990	63,650
West North Central:			
Minnesota	173	181,183	39,861
Iowa	967	597,449	131,438
Missouri	5,573	2,958,006	502,859
North Dakota	11	2,485	575
South Dakota	2	1,811	458
Nebraska	56	35,433	8,151
Kansas	1,109	645,748	122,690
South Atlantic:			
Delaware	364	270,560	45,994
Maryland	608	517,525	82,805
District of Columbia	6	7,097	1,065
Virginia	597	313,873	37,666
West Virginia	817	594,833	101,119
North Carolina	1,867	936,251	140,438
South Carolina	170	40,187	6,431
Georgia	149	96,852	13,559
Florida	60	52,766	7,918

TABLE 2 — (*Concluded*)

DIVISION AND STATE	Acreage	Yield (in quarts)	Value
East South Central:			
Kentucky	2,451	1,778,468	$266,780
Tennessee	1,336	1,200,981	132,129
Alabama	107	87,695	13,156
Mississippi	60	61,605	9,854
West South Central:			
Arkansas	1,269	885,539	132,833
Louisiana	45	18,145	2,903
Oklahoma	2,245	1,531,810	275,723
Texas	5,629	6,287,333	1,131,721
Mountain:			
Montana	15	13,128	2,627
Idaho	135	91,056	19,122
Wyoming	.....	.....	.....
Colorado	91	76,234	18,296
New Mexico	16	8,233	1,975
Arizona	33	37,040	7,408
Utah	88	115,437	26,552
Nevada	(1)	397	80
Pacific:			
Washington	1,403	3,691,065	664,392
Oregon	1,354	2,139,110	299,476
California	1,742	2,549,082	509,816

[1] Reported in small fractions.

CHAPTER VI

VARIETIES OF BLACKBERRIES

Acme. 1. *Am. Pom. Soc. Cat.* 24. 1909.

The 1909 catalog of the American Pomological Society lists this sort and recommends it for culture in northern New Mexico, Arizona, Utah, and Colorado.

Agawam. 1. *Am. Hort. Ann.* 85. 1871. 2. *N. Y. Sta. Bul.* **63**:665. 1893. 3. *Ibid.* **278**:138. 1906. 4. Ont. Dept. Agr. *Fr. Ont.* 254, fig. 1914. 5. Card *Bush-Fr.* 215. 1917.

Long a favorite early blackberry, Agawam is still widely grown but is now no longer rated as a standard commercial sort. Its most notable good qualities are productiveness of plant, high quality and earliness of fruit. The berries, while not of largest size, are large, very attractive in appearance, ship and keep well. The plants suffer somewhat from winter killing, but still are as hardy as the average blackberry. They resist drouth well, have comparatively few and small thorns, and produce their fruit over a long season. Unfortunately the berries are too variable in size and color, and require so many pickings that the variety is not now set in a commercial plantation. The plants have peculiarities of continuing to bloom after the first fruits are ripe and of having the leaves heavily tinged with red late in the season. Agawam was found growing in a pasture between 1865 and 1870 by John Perkins, Ipswich, Massachusetts. In 1889 the American Pomological Society added the variety to its fruit catalog list.

Plants above medium in size and vigor, upright-spreading, fairly hardy, very productive, healthy; canes numerous, stocky, angular, glossy green changing to dark reddish brown, slightly pubescent; prickles comparatively small, medium in thickness, strength and number, greenish; leaflets 3–5, roundish oval, light green, heavily tinged red late in the fall, dull, rugose, pubescent, with serrate margins; petiole medium in length and thickness, with few prickles. Flowers very early, blooming period long; petals white, oblong; clusters short, medium in compactness, leafy; pedicels long, slender, glandular; calyx slightly tomentose. Fruit early, season very long, ships well; medium in size, broad-oblong, glossy, attractive black; drupelets large, rounded, with strong coherence; core soft; flesh rather soft, sweet and pleasant; quality very good.

Albion. 1. *Rural N. Y.* **11**:111. 1860. 2. Downing *Fr. Trees Am.* 443. 1869.

A white sort found in the wild prior to 1860 by John B. Orange, Albion, Illinois. Although introduced as having productive plants and large fruit, Downing found the plants unproductive, the fruit only fair in size, imperfect and without flavor.

Albro. 1. Farmer *Cat.* 14. 1922.

A variety of unkown parentage which originated in 1917 with Lewis Albro, Marathon, New York, by whom it was introduced in 1922. Described as having very hardy plants; fruit larger than Snyder, and of the same shape; flavor excellent.

Alfred. 1. Emlong *Cat.* 11. 1925.

Offered for sale in 1925 by Henry Emlong & Sons, Stevensville, Michigan. Plants very productive and very hardy; fruit large, sweet, fine flavored, coreless, a week earlier

AGAWAM

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than Eldorado, with a long ripening season, bearing blossoms and ripe fruit at the same time.

Alger. 1. *Am. Hort. Ann.* 85. 1871.

Described in 1870 as a new sort from Cleveland, Ohio. Fruit of good size, oblong, deep claret in color, sweet, rich.

Allen. 1. *U. S. D. A. Pom. Rpt.* 27. 1894. 2. *N. Y. Sta. Bul.* **278**:135. 1906.

Sent to the Pomologist of the United States Department of Agriculture in 1894 by W. B. K. Johnson, Allentown, Pennsylvania. As grown at this Station it is inferior to standard sorts in productivity, hardiness, and size of fruit. Allen was placed in the catalog of the American Pomological Society in 1899, and remained in the last catalog in 1909. Plants moderately vigorous, dwarfish, not hardy, moderately productive; fruit small, elongated; attractive black in color, firm, juicy, mild; good; early.

Ambrosia. 1. Card *Bush-Fr.* 215. 1917.

Of unknown origin. Introduced prior to 1917 by A. L. & H. J. Bradley, Makanda, Illinois. Trial at this Station shows this to be a promising early variety. Plants of medium height and vigor, upright-spreading, very productive; canes slender, pubescent; prickles numerous, long, slender, green; fruit uniformly of medium size, conic, somewhat irregular; drupelets medium in size and number, strongly coherent; glossy black, juicy, firm, subacid; good; core soft; early.

Americus. 1. *U. S. D. A. Pom. Rpt.* 27. 1894.

Sent to the Pomologist of the United States Department of Agriculture in 1894 by J. H. Langille, Kensington, Maryland. It was found in a field of Early Harvest and was thought to be a seedling of that variety, although the plants and fruit resemble Erie. Fruit medium to large, irregular, oval or oblong, conic, jet black, moderately firm, melting, juicy, acid; very good; seeds large; ripens between Early Harvest and Erie.

Ancient Briton. 1. *Horticulturist* **27**:318. 1872. 2. *N. Y. Sta. Bul.* **63**:665. 1893. 3. *Cornell Sta. Bul.* **99**:521. 1895. 4. *Mich. Sta. Bul.* **187**:54. 1901. 5. *N. Y. Sta. Bul.* **278**:135. 1906.

This sort has the reputation of being the hardiest of all blackberries and is therefore a prime favorite where hardiness is a requisite. The plants are very vigorous, very productive, with a characteristic stocky, sturdy, erect growth. While the berries are not large nor especially handsome, they are of very good quality and keep and ship well. Ancient Briton is still a standard late blackberry, and would no doubt be more generally grown were it not for the fact that for some reason or other it is more often misnamed by nurserymen than any other blackberry, so that it is now almost impossible to get the variety true to name. The origin of this variety is somewhat in doubt. The most authentic report credits it with being a Wisconsin seedling, found by A. H. Briton, for whom it was named, the name later becoming changed to Ancient Briton. The American Pomological Society added the variety to its fruit catalog list in 1875.

Plants medium to tall, rather vigorous, upright-spreading, unusually hardy, very productive, susceptible to orange-rust; canes moderately numerous and stocky, green changing to reddish brown, dull, glabrous; prickles rather large, thick, very numerous;

leaflets 5, medium in size, thick, dark green, rugose, heavily pubescent, with serrate margins; petiole long, thick, prickly, glandular. Flowers midseason, numerous, in long, open prickly, leafy clusters; pedicels long, slender, nearly smooth. Fruit late midseason; medium to above in size, slightly elongated, tapering, glossy black; drupelets large, elliptical, with strong coherence; core soft; flesh juicy, tender, sweet or pleasantly sprightly; quality good to very good.

Autumn King. 1. Burbank *Cat.* 33. 1893.

A second generation seedling from a cross of Lawton by Oregon Everbearing raised by Luther Burbank, Santa Rosa, California. Plants described as very vigorous and thorny with handsome palmate foliage; fruit large, aromatic, sweet, ripening late in the fall.

Badger. 1. *Wis. Hort. Soc. Rpt.* 247. 1895.

Named by a committee of the Wisconsin Horticultural Society in 1895; described as the earlier of two sorts grown in that State as Ancient Briton.

Bagnard. 1. *Rural N. Y.* **48**:606, fig. 232. 1889.

Originated on the farm of L. Bagnard, near Muscatine, Iowa, prior to 1889. Thought to be a seedling of Snyder. Plants hardy and productive; fruit medium in size; good; ripening with Early Cluster.

Bangor. 1. *Me. Hort. Soc. Rpt.* 125. 1888.

Originated prior to 1888 on the farm of Henry W. Brown, Newburg, Maine. Plants hardy, very productive of small, insipid fruits which fail to ripen properly.

Barnard. 1. *Ia. Hort. Soc. Rpt.* 170. 1874. 2. *N. Y. Sta. Bul.* **63**:665. 1893.

Grown from seed of the wild blackberries of Belmont County, Ohio, prior to 1874, by a Mr. Barnard, Waukon, Iowa. Hardiness has made it popular in northern Illinois and Iowa. Plants lacking vigor, hardy; canes few, strong, with numerous prickles; foliage large; fruit resembles Snyder, medium in size, oblong-oval, black, sometimes drying up before ripe; very good; late.

Best of All.

Introduced in 1923 by J. H. Black, Son & Company, Hightstown, New Jersey; said to have been found by Frank Russel near Vineland about ten years previous.

Big Early. 1. Childs *Cat.* 130. 1916.

Introduced in 1916 by John Lewis Childs, Floral Park, New York. Described as having very large fruits; very early, ripening over a period of four weeks.

Black Chief. 1. *N. Y. Sta. Bul.* **111**:283. 1896.

Received at this Station in 1896 from J. H. Haynes, Delphi, Indiana. Plants vigorous, not hardy, unproductive; canes small, green, with numerous small prickles; fruit of medium size, roundish, mild, sweet; good.

Black Diamond. 1. *Rural N. Y.* **74**:293. 1915. 2. *U. S. D. A. Farmers' Bul.* **1403**:17. 1924.

Star. 3. *Rural N. Y.* **73**:765. 1914.

Ewing Wonder. 4. *N. J. Hort. Soc. Rpt.* 31. 1914.

Atlantic. 5. Lovett *Cat.* 6. 1915.

ANCIENT BRITON

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A seedling of Oregon Evergreen which originated in 1896, with George H. Liepe, Cologne, New Jersey, by whom it was introduced in 1909. It is so similar to Oregon Evergreen that a separate description is not necessary.

Blowers. 1. *Rural N. Y.* **63**:116. 1904. 2. *Am. Pom. Soc. Sp. Rpt.* 82. 1904–05. 3. Card *Bush-Fr.* 216. 1917. 4. Hedrick *Cyc. Hardy Fr.* 285. 1922.

Perhaps there is greater diversity of opinion in regard to the merit of Blowers than of any other blackberry. It is championed by some, condemned by most, differences in opinion arising for the reason that the plants are exceedingly capricious and vary greatly as grown in different seasons, soils and climates. Where grown best, however, many of the berries are imperfect and worthless as a commercial product. Despite these defects recognized by experimenters and fruit growers generally, nurserymen continue to offer it as a valuable variety. It is of the type of Snyder, but not nearly as reliable as that standard sort. Blowers originated with H. W. Blowers, Westfield, New York, about 1888. The American Pomological Society added the variety to its fruit catalog in 1909.

Plants tall, vigorous, upright-spreading, somewhat tender to cold, variable in yield and health, susceptible to orange-rust; canes medium in number, stocky, angular, greenish red later mingled with brown, rather dull red at maturity, glabrous, eglandular; prickles large, thick, numerous; leaflets usually 5, large, ovate or oval, tinged red late in the fall, dull, rugose, very pubescent beneath, with serrate margins; petiole long, thick. Flowers self-fertile, midseason, in short, leafy clusters; petals white, roundish; pedicels long, glandular; calyx very pubescent. Fruit late midseason, ripening over a long period, ships well; not uniform in size, medium to sometimes very large, broadly cylindrical but variable, tapering, glossy black; drupelets average large but variable in size, coherence and number, round, some berries not well filled as if from lack of pollination; core soft; flesh juicy, mild, soft, sweet, or pleasantly sprightly; good in quality.

Bonanza. 1. *Rural N. Y.* **48**:606. 1889.

Found in the wild by John Tuckerman, Bridgewater, New York. Plants dwarfish, spreading, productive; fruit small, round, slightly bitter; fair; midseason.

Boschen Early. 1. *Am. Pom. Soc. Rpt.* 159. 1920.

Originated with a Mr. Boschen, Toronto, Kansas. Plants bushy, not fully hardy; fruit similar to that of Early Harvest, large, jet black; good shipper; coreless.

Bow Cane. 1. *N. Y. Sta. Bul.* **278**:143. 1906.

Plants were received at this Station from Broome Brothers, McLoud, Oklahoma, in 1900. Plants dwarfish, somewhat trailing, moderately vigorous, not hardy, unproductive; fruit of medium size, roundish, unattrative in color; drupelets large, acid; fair.

Braden. 1. *Rural N. Y.* **44**:868. 1885.

Described by T. V. Munson in 1885 as recently coming from southwest Texas. Plants very vigorous, drooping, very productive, free from rust, thorny; fruit borne singly or in small clusters, black; good; early.

Brewer. 1. *N. J. Hort. Soc. Rpt.* 30. 1921.

A chance seedling discovered in 1909 by C. H. Brewer, Rahway, New Jersery, who sent out plants in 1920 for trial. Plants vigorous, free from rust, and productive; fruit above medium in size, firm; fair quality; ripens over a long period.

Brill. 1. Slaymaker *Cat.* 13. 1904.

Introduced in 1904 by Slaymaker & Son, Dover, Delaware, as a new early sort from J. F. Brill, Texas. Plants upright; fruit as early and as large as those of Lucretia.

British. 1. Bunyard *Cat.* 18. 1913–14.

George Bunyard & Company, Maidstone, England, list this sort, describing it as quite the best blackberry for flavor, when grown under garden culture.

Brunton Early. 1. *Ill. Hort. Soc. Rpt.* 125. 1878.

Originated with a Mr. Brunton, Centralia, Illinois, prior to 1877. Deficient in pollen and little fruit is produced when the variety is planted alone. It was placed in the catalog of the American Pomological Society in 1883 and remained in the last catalog in 1909. Plants similar to Early Harvest, not hardy, unproductive; fruit of medium size, oblong, black; good; very early.

Buckeye.

A chance seedling found by Mortimer Ewart, Mogadore, Ohio. Plants were sent to this Station in 1914. As grown here it is very similar to Agawam.

Bundy. 1. *Rural N. Y.* **74**:293. 1915.

Originated about 1905 with T. B. Bundy, Piedmont, Missouri. Supposed to be a seedling of Early Harvest. As grown at this Station the plants are too tender to cold to be of much value. Plants tall, vigorous, upright, moderately productive; fruit very variable in size, averaging medium, cylindrical-oval, glossy black, melting, sweet; good; early.

Burbank Thornless. 1. Burbank *Cat.* 14. 1915–16.

Originated in 1904 by Luther Burbank, Santa Rosa, California, who describes it as a cross of a West Virginia wild blackberry and Himalaya. Introduced by Burbank in 1914. Plants very vigorous, the canes sometimes reaching a length of twenty feet, very productive; fruit uniform in size, firm; good; early.

Bushel. 1. *Am. Pom. Soc. Rpt.* 208. 1922.

Introduced by the Shady Lawn Nurseries, Hammonton, New Jersey. Young plants at this Station are of the type of Oregon Evergreen, but have larger, coarser foliage, and the petals are entire instead of tripartite.

California Evergreen. 1. *Cal. Sta. Rpt.* 376. 1895–97.

On trial at the California Station in 1895. Plants very productive; fruit watery, flavor inferior; long ripening season.

Cape May. 1. Fuller *Sm. Fr. Cult.* 175. 1867.

Described by Fuller in 1867 as a good sort for home use, but too tender for market. Fruit very large, black when first ripe, but changing to a dull red, soft, sweet.

Cardinal Balloonberry. 1. Burbank *Cat.* 17. 1911–12. 2. *Am. Pom. Soc. Rpt.* 163. 1920.

Originated from an unknown Chinese species by Luther Burbank, Santa Rosa, California, who introduced it in 1912. Plants vigorous, upright, stiff, productive, not hardy, thorny; fruit larger than that of the raspberry, cardinal red; flesh yellowish red, mild; good; ripens with strawberries.

Carlo. 1. *N. Y. Sta. Bul.* **63**:665. 1893.

On trial at this Station in 1893. Plants vigorous, unproductive; canes arched, with slender branches, and few small prickles; fruit small; drupelets large, subacid; fair.

Cazadero. 1. *Oregon Nur. Cat.* 28. 1920.

Found growing in the woods on Cazadero Mountain, east of Portland, Oregon, by H. Cline, Hillsboro, Oregon; introduced in 1915 by the Oregon Nursery Company, Orenco, Oregon. Described by them as a seedling of the native wild blackberry. Plants vigorous, probably not hardy in the East; fruit small with a rich snappy flavor making it desirable for culinary purposes; early.

Chautauqua. 1. *N. Y. Sta. Bul.* **278**:135. 1906.

Plants were received at this Station in 1903 from K. E. Downer, Forestville, New York. Plants vigorous, stocky, hardy and productive; fruit large, roundish, attractive black; drupelets large, acid, pleasing; good.

Chesnut. 1. *Texas Farm Jour.* **25**:No. 29, 2. 1905. 2. *Am. Pom. Soc. Rpt.* 286. 1921.

Found growing in a field of Dallas in 1901 by J. T. Chesnut, Keene, Texas, by whom it was introduced in 1904. The variety has value in Texas because of its earliness, productivity and good shipping qualities. As grown at this Station the plants are tender to cold and produce little fruit. Plants vigorous, sprawling; canes slender, reddish, thickly covered with reddish prickles; fruit large, sweet, firm; early.

Claret. 1. Fuller *Sm. Fr. Cult.* 179. 1867.

Adair Claret. 2. *Am. Jour. Hort.* **1**:292, fig. 1867.

A chance seedling which originated about 1860 with D. L. Adair, Hawesville, Kentucky. Plants erect, stocky, not fully hardy; canes light green; fruit of medium size, claret colored, soft, mild, pleasant; season a week earlier than Lawton.

Clark. 1. *Rural N. Y.* **56**:598. 1897. 2. *N. Y. Sta. Bul.* **278**:135. 1906.

Originated with G. B. Clark, Remington, Indiana. Introduced about 1900 by Matthew Crawford, Cuyahoga Falls, Ohio. As grown at this Station the variety is inferior to standard sorts. Plants vigorous, rather tender to cold, moderately productive; fruit of medium size, roundish, slightly elongated, unattractive dull black, sprightly, soft; good; late.

Clifton. 1. *N. Y. Sta. Bul.* **278**:141. 1906.

Received at this Station in 1898 from L. J. Clifton, Memphis, New York, with the statement that it came from the West a few years previously. Plants vigorous, not very hardy, productive; fruit varies in size from large to small, attractive black, roundish to slightly elongated, acid, pleasing; good.

Colonel Wilder. 1. *Mag. Hort.* **30**:360. 1864.

Originated prior to 1864 by John B. Orange, Albion, Illinois. Fruit of medium size, oblong, slightly pointed, light cream color, moderately firm, does not develop well; very good.

Colossal. 1. *Ann. Hort.* 128. 1893. 2. Salzer *Cat.* 16. 1900.

Introduced in 1893 by the John A. Salzer Seed Company, La Crosse, Wisconsin, who describe the plants as vigorous and hardy; fruit large, firm, juicy, sweet, delicious; season long.

Coral-Berry. 1. *Rural N. Y.* **61**:578. 1902.

On trial at the test grounds of the *Rural New-Yorker* in 1902. Described as belonging to an unidentified species, but probably closely related to the Golden Mayberry. Plants much hardier than that sort, ornamental, the under side of the leaves being silvery white; fruit similar to the Golden Mayberry, but the color is bright orange-red, shading to a clear color tint, firm, astringent, making a fine-flavored jelly.

Cory Thornless. 1. *Cal. Cult.* **48**:30. 1917. 2. *Am. Pom. Soc. Rpt.* 159. 1920. *Thornless Mammoth.* 3. *Ibid.* 284. 1921.

Discovered by Martin Meuli, Tuolumne County, California, in 1909. The variety was propagated by W. C. Cory, and introduced in 1916 by the Ekstein Nursery Company, Modesto, California. Possibly this is a dewberry or a hybrid. Plants very vigorous, thornless when propagated from tips but very thorny when propagated from roots; productive; fruit large, almost seedless; core small and firm; flavor much like the wild blackberry of California, being less acid than the loganberry; season very early.

Cox. 1. *Am. Pom. Soc. Cat.* 24. 1909. 2. *Am. Pom. Soc. Rpt.* 283. 1921.

Found in Erath County, Texas. Introduced by F. T. Ramsey, Austin, Texas, prior to 1901. It was placed in the catalog of the American Pomological Society in 1909. Fruit of medium size, round, reddish black; good; early.

Crystal White. 1. Elliott *Fr. Book.* 196. 1859. *Orange's Crystal.* 2. *Mag. Hort.* **30**:359. 1864.

Raised from seed by John B. Orange, Albion, Illinois, prior to 1859. Plants vigorous, not hardy, suckering freely, very productive when grown with other sorts; prickles few, weak; fruit of medium size, oblong-oval, light creamy white, translucent, sweet; good.

Cumberland. 1. Fuller *Sm. Fr. Cult.* 174. 1867.

According to Fuller this variety was largely cultivated by J. Cox, Bridgeton, New Jersey. Plants hardy, productive; fruit of medium size, black, sweet; good; early with short season.

Cutter Mulberry. 1. *Mag. Hort.* **25**:397. 1859.

Introduced by G. B. Cutter, Newton, Massachusetts, about 1859. Plants very productive; fruit long, slender, very sweet.

Dehring. 1. *Mich. Sta. Bul.* **55**:26. 1889.

On trial at the Michigan Station in 1889. Plants weak, trailing, not hardy, moderately productive; fruit small, irregular, oblong-oval, black, firm; good; early.

Delicious. 1. *Am. Pom. Soc. Rpt.* 159. 1920.

Originated by Luther Burbank by whom it was introduced in 1912. Said to be a tenth or twelfth generation seedling of Himalaya. Plants very vigorous, moderately hardy, very productive; canes thorny; fruit medium in size, shape of Himalaya, black, sweet; superb quality; season August and September in California.

Dodge Thornless. 1. *Horticulturist* **24**:75. 1869.

Originated with N. E. Dodge, Fredonia, New York, prior to 1869. Plants hardy and productive; canes thornless; fruit small.

Dorchester. 1. *Mag. Hort.* **7**:384. 1841. 2. *Ibid.* **23**:402. 1857.
Improved High Bush. 3. *Ibid.* **17**:20, fig. 4. 1851.

For a discussion of this old sort, see page 185. The American Pomological Society placed Dorchester in its catalog in 1856, where it remained until 1899. Plants vigorous, upright, subject to winter injury, productive; canes strong with numerous strong prickles; fruit of medium size, elongated, attractive black in color, juicy, sweet; good.

Dr. Warder. 1. *Mag. Hort.* **30**:360. 1864.

Raised by John B. Orange, Albion, Illinois, prior to 1864. Fruit large, dark rosy red; good.

Dublin Best. 1. *Am. Pom. Soc. Rpt.* 159. 1920.

A chance seedling found on the farm of a Mr. Tackett; introduced about 1918 by S. P. Sitton & Son, Dublin, Texas. Plants trailing the first season, becoming more erect the second; fruit very similar to that of Mayes.

Duncan Falls. 1. Downing *Fr. Trees Am.* 445. 1869.

Introduced by J. C. Neff, Duncan Falls, Ohio. Plants very vigorous, upright; fruit large, black, moderately firm, juicy, sweet; ripens before Kittatinny.

Early Cluster. 1. *Rural N. Y.* **43**:587. 1884. 2. *N. Y. Sta. Bul.* **63**:666. 1893.

The original plant was found about 1872 in a plantation of Missouri Mammoth on the farm of Charles W. Stam in southern New Jersey. At this Station the plants are tender to cold and of little value. Plants upright, moderately vigorous, variable in hardiness, productive; canes stout; prickles numerous, moderately strong; fruit medium in size, short oblong; drupelets large, glossy black, sweet; very good; core soft; season early and short.

Early Harvest. 1. *Rural N. Y.* **42**:638. 1883. 2. *N. Y. Sta. Bul.* **278**:142. 1906.
3. Card *Bush-Fr.* 218. 1917. 4. Hedrick *Cyc. Hardy Fr.* 286, fig. 249. 1922.

In the early stages of blackberry culture in this country, Early Harvest was considered valuable as an extra early variety. It is now little grown as the plants suffer much from winter injury in the North and in the South are very susceptible to orange-rust. The variety is prized in parts of California and is an extra early sort in some parts of the South. The fruits are small with small drupelets but are very uniform in size, jet black, and are very distinct from that of other sorts in general appearance. They ship well and the quality is very good. The plants are so stocky, upright, and sturdy as to require no trellis, making the variety a desirable one for the home garden. This is an old variety, the original plant of which was found growing wild in Illinois some time previous to 1880. The American Pomological Society added the variety to its recommended list of fruits in 1883.

Plants dwarfish, branching freely, medium in height and vigor, very upright, requiring no trellis, tender to cold, variable in yield, susceptible to orange-rust in some localities; canes variable in number, deeply furrowed, green changing to dark reddish brown or red at maturity, dull, glabrous; prickles small, slender, medium to few; leaflets 3–5, oval-lanceolate, small, rather thin, light green assuming a reddish cast and persistent late in the fall, dull, with deeply serrate margins; petiole long, medium in thickness, prickly, pubescent. Flowers midseason, self-fertile, in short, leafy clusters; pedicels heavily pubescent. Fruit

very early, ships well; distinctive in appearance, medium in size, conical, slightly elongated, glossy jet black; drupelets small, uniform, round, with fairly good coherence; core soft; flesh juicy, tender, very mild, sweet; quality fair to sometimes good.

Early King. 1. *Rural N. Y.* **48**:606, fig. 230. 1889. 2. *N. Y. Sta. Bul.* **278**:142. 1906. *King.* 3. *U. S. D. A. Farmers' Bul.* **643**:12. 1915.

Originated in Missouri prior to 1885; brought to attention about 1889. It did not prove hardy or productive at this Station, but in the milder parts of the East is a good early sort. King was added to the American Pomological Society's fruit list in 1909. Plants vigorous, dwarfish, subject to winter injury, moderately productive, subject to rust; canes purplish, with numerous long prickles; fruit of medium size, roundish or slightly oblong, attractive black, firm, sweet; good; season early, short.

Early Mammoth. 1. *N. Y. Sta. Bul.* **63**:666. 1893.

Thompson's Early Mammoth. 2. *Am. Pom. Soc. Rpt.* 84. 1891.

Sent out about 1888 by the Cleveland Nursery Company, Lakewood, Ohio. It was said to be a hybrid between the blackberry and the dewberry, but at this Station it was very similar to Wilson, Jr., in habit of growth. Plants moderately vigorous, not hardy, productive; canes tinged red, covered with numerous slender prickles; fruit variable in size from small to very large, slightly elongated; drupelets large, many poorly developed, bright black, very juicy, subacid; good.

Early Wonder. 1. *Fitzgerald Nur. Cat.* 1915.

Found about 1902 by the Fitzgerald Nurseries, Stephenville, Texas, by whom it was introduced about 1910. Plants more productive than Dallas; foliage scanty; fruits as large as those of Mayes, ripening after McDonald, sometimes autumn-fruiting.

Eldorado. 1. *U. S. D. A. Pom. Rpt.* 394. 1891. 2. *N. Y. Sta. Bul.* **278**:136. 1906. 3. Card *Bush-Fr.* 218. 1917.

This sort has several notable virtues which made it for many years a standard blackberry. It is still much prized for home and local markets in most of the blackberry regions of eastern America. The qualities which commend it are great hardiness and great immunity from the orange-rust which seldom attacks it. The fruits are large, handsome in appearance, and exceptionally high in quality. Eldorado is usually considered the first main crop variety to ripen. This variety originated about 1880 as a chance seedling near the village of Eldorado, Ohio. In 1899 the variety was added to the fruit list of the American Pomological Society.

Plants tall, vigorous, upright-spreading, hardy, productive, healthy, seldom attacked by orange-rust; canes obtusely furrowed, glossy, greenish red becoming dark red at maturity, glabrous, with small, almost sessile glands; prickles long, slender, numerous, reddish at the base; leaflets usually 5, oval, dull, somewhat smooth, pubescent, with serrate margins; petiole reddish, slender, nearly glabrous, with few small glands. Flowers self-fertile, early, in loose, leafy clusters; petals white, oblong; pedicels long, slender, glandular. Fruit early midseason, ripening period long; large, roundish to slightly elongated, jet black; drupelets large, round, few; core soft; flesh juicy, firm, sweet, rich, pleasantly flavored; quality good to very good.

ELDORADO

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English. 1. *Am. Pom. Soc. Rpt.* 284. 1921.

Discovered twenty miles north of Bonham, Texas. Plants hardy and productive; fruit large; good.

Erie. 1. *Rural N. Y.* **45**:465. 1886. 2. Card *Bush-Fr.* 218. 1917. 3. Hedrick *Cyc. Hardy Fr.* 286. 1922.

Uncle Tom. 4. *Ohio Hort. Soc. Rpt.* 15. 1885–86.

On the grounds of this Station, Erie has long been one of the best varieties, notable as yielding a good crop of extremely large, handsome, well-flavored berries. It has always seemed to the experimenters here that Erie is worthy of more general cultivation. The plants are very vigorous, usually productive, and nearly immune to the dreaded blackberry rust. It is not as hardy as might be wished but is above the average in this respect. While the fruits are large and handsome, they are not high in quality, usually, however, because the fruit is picked before it has matured. The berries of Erie remain hard and sour long after turning black, and if the picking is hurried, they are wretchedly poor in quality. Erie originated with L. B. Pierce, Tallmadge, Ohio, in 1876, probably as a seedling of Lawton. It was introduced by J. T. Lovett in 1886 under the name Uncle Tom, which name was later changed to Erie. The American Pomological Society added Erie to its fruit catalog list in 1889.

Plants medium to tall, vigorous, often much branched, upright-spreading, fairly hardy, productive, healthy, seldom attacked by orange-rust; canes numerous, very stocky, deeply furrowed, obtuse-angled, glossy, greenish changing to dull red, pubescent, glandular; prickles large, long, numerous, greenish; leaflets 5, large, thick, oval, light green changing to dull red late in the fall, dull, rugose, pubescent, with serrate margins, petiole thick. Flowers midseason, very large, borne in long, open, leafy clusters; pedicels thick, glandular. Fruit midseason; large to very large, broadly cylindrical to nearly globular, tapering irregularly, glossy, attractive black; drupelets numerous, rather small, round; core rather soft; flesh soft only when fully mature, juicy, sweet when fully ripe, pleasantly flavored; quality good.

Erskine Park. 1. *Harris Nur. Cat.* 62. 1911.

Originated about 1904 with E. J. Norman, Lenox, Massachusetts; supposed to be a sport of Kittatinny. One year's test at this Station shows that the variety has considerable merit. Plants tall, vigorous, upright, branching freely, hardy and productive; canes stocky, dull green with reddish brown tinge, glabrous; prickles medium in number, strong; fruit medium in size, irregular, roundish conic to cylindrical; drupelets of medium size, cohering strongly, glossy black, juicy, tender, sweet; very good; core soft; season long.

Eureka. 1. *Mich. Hort. Soc. Rpt.* 406. 1886.

Raised from seed of Wilson by William Parry, Parry, New Jersey, in 1876. After growing many seedlings for four years, the best was selected and named Eureka.

Eureka (of Texas). 1. Munson *Cat.* 10. 1899. 2. *Rural N. Y.* **61**:578. 1902.

Brought from Alabama to Texas by H. A. Biles, Roanoke, Texas; introduced in 1899 by T. V. Munson & Son, Denison, Texas. As grown at the trial grounds of the *Rural New-Yorker*, the plants were tender, unproductive and thorny; the fruit large, round, jet black, firm, sweet, with a pleasing flavor.

Excelsior. 1. *Mass. Sta. Bul.* **7**:4. 1890.

On trial at the Massachusetts Station in 1890. Plants tender to cold, productive; fruit large; good; midseason.

Farley. 1. *Cult. & Count. Gent.* **33**:137. 1869.

Brought to notice in 1869 by A. M. Burns of Kansas, who obtained it from J. McClure, Pennsylvania. Plants hardy in Kansas; fruit nearly as large as Lawton, ripe as soon as black, two weeks earlier than Lawton.

Favorite Trailing. 1. *Am. Pom. Soc. Rpt.* 159. 1920.

Introduced by the Rosebud Nursery, Winner, South Dakota. Plants described as very productive, hardy, but needing some protection; fruit large, beautiful; good.

Felton. 1. Fuller *Sm. Fr. Cult.* 175. 1867.

Introduced a few years prior to 1867 by Oscar F. Felton, Camden, New Jersey. At first it was considered identical with Wilson, but was later decided to be a distinct variety. Plants spreading; fruit very large, long, slightly conic, often poorly developed, sweet; good; early.

Florence. 1. *N. Y. Sta. Bul.* **278**:136. 1906.

A chance seedling found among other varieties by G. E. Goldsmith, Unionville, New York, in 1895. Plants were sent to this Station in 1902. Plants vigorous, rather tender to cold, productive; fruit varying in size from medium to very large, roundish, attractive black; drupelets large, juicy, sprightly; good.

Florida Marvel. 1. *Fla. Grower* **6**:Nov. 29. 1924.

Discovered about 1904 by a Swedish woman near New Smyrna, Florida. First brought to attention by a Dr. Ballaugh, Daytona, Florida. It seems to have considerable value for Florida. Plants vigorous, trailing, bearing fruit at the intersection of every leaf, very productive; propagates by layers and root cuttings; fruit large, long, glossy black, firm, juicy, sweet.

Ford No. 1. 1. *N. Y. Sta. Bul.* **111**:284. 1896.

Received at this Station in 1892 from Frank Ford & Son, Ravenna, Ohio; inferior to standard varieties, the plants being only moderately productive and the fruits of but medium size; quality good.

Freed. 1. *Mo. Sta. Bul.* **10**:9. 1889.

Originated about 1871 by George Freed, Columbiana County, Ohio. Plants very vigorous, upright, very hardy, but unproductive; prickles few; fruit small, oblong, juicy; good; ripening with Snyder.

French Lawton. 1. Scarff *Cat.* 15. 1910.

Introduced about 1903 by W. N. Scarff, New Carlisle, Ohio, as a selection from Lawton. At this Station the plants have proved tender to cold and rather unproductive; in no way superior to Lawton.

Fruitland. 1. *N. Y. Sta. Bul.* **81**:581. 1894.

Received at this Station in 1892 from W. N. Scarff, New Carlisle, Ohio. As grown here it is inferior to standard sorts. Plants vigorous, upright, fairly hardy, unproductive;

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canes tinged reddish, with numerous prickles; fruit of medium size, roundish; drupelets variable in size; sweet; good; late.

Gainor. 1. *Ont. Fr. Gr. Assoc. Rpt.* 68. 1883.

Found in a strawberry bed in 1878 by Jacob Gainor, Thorold, Ontario. Plants vigorous, hardy, very productive; fruit very similar to Erie, but larger; midseason.

Georgia Mammoth. 1. *Am. Pom. Soc. Rpt.* 159. 1920.

Originated with W. D. Beatie, Atlanta, Georgia. Plants strong, upright, branches long and drooping, often rooting at the tips, not very thorny, productive, non-suckering; fruit large, glossy black, rich, aromatic; fine quality; seeds small; core soft; early.

German. 1. *Am. Pom. Soc. Rpt.* 284. 1921.

Introduced by the Lennox Nursery and Fruit Farm, Lennox, South Dakota. Root cuttings were said to have been brought from Germany in 1910. Plants very vigorous, requiring winter protection in South Dakota; fruit very large, dark glossy black, juicy, very firm.

Golden Mayberry. 1. Burbank *Cat.* 23. 1893. 2. Childs *Cat.* 154. 1894.

Originated by Luther Burbank, Santa Rosa, California, as a supposed cross between *Rubus palmatus* and Cuthbert. Introduced in 1894 by John Lewis Childs, Floral Park, New York. Described by Burbank as having plants growing like trees, six to eight feet high, with spreading tops; flowers large, white, bell-shaped, pendant; fruit large, glossy golden color, translucent, sweet; very early.

Governor. 1. *Ann. Hort.* 152. 1892. 2. Salzer *Cat.* 16. 1900.

Introduced in 1890 by John A. Salzer, La Crosse, Wisconsin. Described as hardy and very productive; fruit very large, round to oblong, rich; early.

Grape. 1. *Am. Pom. Soc. Rpt.* 76. 1860.

Mentioned in a discussion at the meeting of the American Pomological Society in 1860. Plants trailing, shoots sometimes growing twenty feet long, very hardy and productive.

Green Hardy. 1. *Green Nur. Cat.* 1. 1906.

Discovered among wild blackberries about 1891 in Chili, New York, by E. H. Burson, Clifton, New York; introduced in 1907 by Green's Nursery Company, Rochester, New York. At this Station it is not equal to standard sorts. Plants vigorous, tall, upright-spreading, fairly hardy, unproductive; canes stocky; prickles numerous, strong; fruit medium in size, irregular, cylindrical-conic to round-conic; drupelets medium in number, cohering strongly; black, juicy, melting, subacid; good; core medium firm; midseason.

Haley. 1. *Kan. Hort. Soc. Rpt.* 50. 1884.

Found growing along the prairie ravines, Franklin County, Kansas, by E. Haley. Plants dwarfish; fruit of medium size; excellent quality.

Hesse. 1. *Mich. Sta. Bul.* **213**:11. 1904.

On trial at the Michigan Station in 1903. Plants spreading, branching close to the ground, tender to cold; canes large; fruit attractive; of fine quality.

Himalaya. 1. *Gard. Mon.* 17:206. 1875. 2. *Rural N. Y.* 71:625. 1912. 3. *Ibid.* 73:252, 765, fig. 1914.

Theodor Reimers. 4. *Fest. Pom. Reut. Inst.* 130. 1910.

Giant Himalaya. 5. Hedrick *Cyc. Hardy Fr.* 287, fig. 250. 1922.

A full account of this berry is given elsewhere. (See page 191.) The variety is all but worthless in New York and the eastern states but is rather commonly grown for home markets on the Pacific Slope. The plants are too tender to cold for northern regions and in regions south of Pennsylvania, while they withstand the weather and seem vigorous, they are almost barren. Wherever grown the plants need cross pollination, and even so produce many imperfect fruits. The berries are not high in quality and are rather uninviting in appearance. The long, trailing, thorny evergreen canes are almost unmanageable on trellis or stakes. On the Pacific Coast, however, the plant is grown on arbors and trellises, and blooms and bears fruit all summer and autumn. There may be value in the variety for hybridization as the several hybrids now known, of which it is one parent, promise much. Vigor and productiveness of plants are characters for which it should be used in hybridization. The American Pomological Society added the sort to its fruit catalog list in 1909.

Plants extremely vigorous, trailing, tender to cold, variable in yield, susceptible to anthracnose; propagated from tips or root-cuttings; canes perennial, numerous, very stocky, greenish, tinged red, glossy, pubescent, cylindrical or furrowed; prickles long, thick, very strong, numerous, reddish at the base but green tipped; leaflets 3–5, oblong-oval to obovate, dull, luxuriant dark green, smooth, thick, slightly pubescent, with serrate margins; petiole thick, greenish red. Flowers late, said to require cross pollination, large, showy, few, pinkish, in rather short, open, leafy, prickly clusters; pedicels somewhat short, prickly. Fruit very late, season very long; extremely variable in shape and size, averaging medium, irregularly hemispherical, glossy black; drupelets intermediate in size, round, with fairly good coherence; core soft, with creamy red tinge; flesh juicy, tender, very tart becoming sprightly when fully ripe; quality fair to good.

Hoag. 1. *Col. O. Hort. Soc. Rpt.* 70. 1887.

Originated with Charles R. Hoag, Kasson, Minnesota, and named after him by the Minnesota Horticultural Society. Sent out for trial in 1887 by A. W. Sias, a vice-president of that organization. Plants productive with the originator, but a failure elsewhere.

Holcomb. 1. *Mag. Hort.* 25:397. 1859.

Exhibited before the Hartford, Connecticut, Horticultural Society in 1855 by E. A. Holcomb, Granby, Connecticut. Plants vigorous, productive, and hardy; canes moderately stout; fruit large, roundish oval, black, moderately firm, sweet, rich, excellent; early.

Holt. 1. *Col. O. Hort. Soc. Rpt.* 9. 1890.

Originated prior to 1890 with Samuel Holt, Worthington, Ohio. Described as promising because of vigor and productivity of plants and size and quality of fruit.

Honey Coreless. 1. Bradley Bros. *Cat.* 19. 1913.

Hoco. 2. *Ibid.* 14. 1923.

Introduced in 1913 by Bradley Brothers, Makanda, Illinois. Plants described as vigorous, hardy, and very productive; fruit large, long, sweet, juicy, delicious, without core; early.

Hoosac Thornless. 1. *Am. Jour. Hort.* **8**:230. 1870.

Frank Ford, Ravenna, Ohio, found this sort near Hoosac Mountain, Rowe, Massachusetts, in 1864. Plants hardy, productive; canes thornless; fruit small, firm, sweet.

Hoosier. 1. *Mass. Sta. Bul.* **44**:16. 1897.

On trial at the Massachusetts Station in 1896. Plants vigorous, hardy and very productive; fruit large; very good.

Howard. 1. *Mich. Sta. Bul.* **213**:10. 1904.

Received at the Michigan Station in 1901 from Edgar Howard, Stevensville, Michigan. Canes medium in size, not very productive; fruit of medium size, slightly elongated, of good color, firm, pleasant.

Iceberg. 1. Jackson & Perkins *Circ.* 1897.

This white blackberry originated with Luther Burbank, Santa Rosa, California, and is the result of three generations of crossing Lawton and Crystal White; introduced in 1897 by Jackson & Perkins, Newark, New York. It was added to the fruit list of the American Pomological Society in 1909. Plants moderately vigorous, upright, not hardy, unproductive; canes slender; foliage thin, narrow, tinged yellow; fruit large, type of Early Harvest; drupelets small, amber-white, soft, sweet; very good; midseason.

Ida. 1. *N. Y. Sta. Bul.* **278**:142. 1906.

Received at this Station in 1898 from Thompson Sons, Rio Vista, Virginia; said to be a seedling of Early Harvest. Plants moderately vigorous, semi-dwarfish, tender to cold, unproductive; fruit medium in size, elongated, dull black, juicy; fair; early.

Illinois. 1. *Am. Pom. Soc. Cat.* 24. 1909. 2. Stark Bros. *Cat.* 94. 1910.

Found in a fence corner about 1890 by E. A. Riehl, Alton, Illinois; introduced by Stark Brothers, Louisiana, Missouri. The American Pomological Society added Illinois to its fruit list in 1909. Plants low, spreading, vigorous, half hardy and unproductive; fruit medium in size, roundish to conic; drupelets large, sweet; good; late midseason.

Johnson. 1. Card *Bush-Fr.* 221. 1917.

From Missouri. Said to be adapted to the South and to be popular there.

Jordan. 1. Card *Bush-Fr.* 230. 1898.

The Austin Nursery Company, Austin, Texas, writes that this sort originated about 1895 with James Nimon, Denison, Texas, who later introduced it. It has some merit as a late sort in the South, but is of no value at this Station. Plants vigorous, semi-trailing, tender to cold, unproductive; fruit variable in size, usually large, broadly ovate, glossy black, juicy, melting, nearly sweet; good; core hard; late.

Joy. 1. Lovett *Cat.* 15. 1914.

A chance seedling found by Jacob Miehl, Atlantic County, New Jersey; introduced in 1914 by J. T. Lovett, Little Silver, New Jersey. At this Station the plants have shown considerable winter injury and many berries are poorly developed. Plants tall, vigorous,

upright-spreading, half hardy, productive; canes stocky, reddish green; prickles very numerous, large, strong; fruit of medium size, irregular, cylindrical-conic; drupelets large, many failing to develop, black, juicy, soft, mildly subacid; good; core medium; midseason.

Kenoyer. 1. Kenoyer *Circ.* 1904.

A chance seedling discovered in 1897 by F. L. Kenoyer, Independence, Kansas, by whom it was introduced in 1902. It is supposed to be a cross between Early Harvest and Kittatinny which were growing nearby. At this Station the plants require winter protection and are rather unproductive. Kenoyer was added to the catalog of the American Pomological Society in 1909. Plants medium in height and vigor, upright, not hardy, unproductive; canes medium in size, green, nearly glabrous; prickles medium in size and number; fruit of medium size, irregular, cylindrical to slightly conic; drupelets large; black, juicy, soft, sweet; very good; midseason.

Kentucky White. 1. Downing *Fr. Trees Am.* 445. 1869.

Introduced by D. L. Adair, Hawesville, Kentucky. Plants tender; fruit medium in size, oblong-oval, light dirty white; imperfect.

King Philip. 1. *Ia. Hort. Soc. Rpt.* 195. 1906.

Originated with E. P. Powell, Clinton, New York. Introduced in 1906 by Matthew Crawford, Cuyahoga Falls, Ohio. Said to be very hardy.

Kittatinny. 1. *Mag. Hort.* 30:407. 1864. 2. *Ibid.* 31:272. 1865. 3. Downing *Fr. Trees Am.* 445. 1869. 4. *Rural N. Y.* 42:248, fig. 179. 1883.

No variety has been more widely or commonly grown than Kittatinny in the prime of its popularity. It was one of the first good sorts and for more than half a century was the standard commercial blackberry in North America. In particular, it is noteworthy for its large, handsome fruits which are of the very best quality, having only the defect of being variable in size and shape in some years, probably because imperfectly pollinated. The plants are all that could be desired in vigor, but fail in hardiness, and are very susceptible to the orange-rust. The canes are stout and upright, giving a habit of growth which characterizes the variety. This berry is a native wilding found in the town of Hope, New Jersey, near the base of the Kittatinny Mountains, and was introduced by E. Williams, of Montclair, about 1865. The American Pomological Society included the variety in its fruit catalog list in 1867.

Plants tall, vigorous, upright to spreading, somewhat tender to cold, productive, susceptible to orange-rust; canes medium to numerous, stocky, grooved, green changing to reddish brown or red when mature, dull, slightly pubescent, eglandular; prickles large, thick, numerous, greenish; leaflets 5, oblong-oval, pubescent, with serrate margins; petiole intermediate in length and thickness. Flowers late, few, in rather short, open, leafy clusters; petals white, roundish; pedicels medium in length and thickness, with few glands; calyx pubescent, eglandular. Fruit early midseason, ripening period long; medium to very large, slightly elongated, variable in size and shape, quite irregular in some seasons as if imperfectly pollinated, large and long when well grown, attractive glossy black; drupelets large, round, with fairly good coherence; core soft; flesh juicy, sweet, rich, firm but tender; quality very good to best.

KITTATINNY

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Knox. 1. *Ont. Fr. Gr. Assoc. Rpt.* 48. 1883. 2. *Mich. Sta. Bul.* **205**:18, 25. 1903.

Of unknown origin; of value as grown at the Michigan Station, but unproductive elsewhere. Plants vigorous, upright, moderately productive; fruit large, attractive; good; late.

La Grange. 1. *Am. Pom. Soc. Sp. Rpt.* 82. 1904–05. 2. Lovett *Cat.* 75. 1910.

Said to have been brought from Russia to Illinois where it was grown for a number of year by Charles La Grange in Vermilion County; introduced in 1910 by J. T. Lovett, Little Silver, New Jersey. Plants tall, vigorous, upright-spreading, rather tender, moderately productive; canes stocky, glabrous; prickles medium in number, strong; fruit below medium in size, irregular cylindrical-conic; drupelets large, black, juicy, soft, subacid; good; core variable; midseason.

Laporte. 1. *Horticulturist* **28**:223. 1873.

Found growing wild at Laporte, Indiana. Brought to notice by A. M. Purdy, Palmyra, New York, about 1873. Plants hardy, vigorous and productive; fruit of medium size, oblong, soft, sweet; excellent; early.

Lawton. 1. *Gen. Farmer* **15**:157, fig. 1854. 2. *Mag. Hort.* **20**:174. 1854. 3. *Horticulturist* **10**:257. 1855. 4. *Mag. Hort.* **23**:543. 1857. 5. Bailey *Ev. Nat. Fruits* 302. 1898.

New Rochelle. 6. Downing *Fr. Trees Am.* 663. 1857.

In a previous chapter we have seen that Lawton was the second named blackberry, and that it played a very important part in the early history of this fruit in America. It long ago passed into oblivion as a commercial sort in eastern America, but is still grown rather widely on the Pacific Slope. Lawton passed out of general cultivation because the plants are tender to cold and very susceptible to the orange-rust. The berries are not at their best until jet black, and are often picked too soon, when they are rather austere in flavor, and this perhaps has given the variety a reputation it does not deserve for fruits of poor quality. The variety was added to the American Pomological Society's fruit catalog list in 1854. (For a fuller account of the history see page 184.)

Plants tall, vigorous, upright-spreading, tender to cold, productive, variable in susceptibility to disease; canes stocky, green changing to brownish red; prickles numerous, large, thick; leaflets 5, dark green, pubescent, with serrate margins, in double series; petiole long, thick, prickly, pubescent. Flowers in compact, leafless clusters; petals white, roundish; pedicels glandular, pubescent. Fruit late midseason, period of ripening long; large, hemispherical to slightly elongated, jet black but becoming bronzed when over-ripe; core large, rather hard; flesh soft, acid at first, becoming sweet only at full maturity, rich, juicy; quality very good.

Leader. 1. Card *Bush-Fr.* 222. 1917.

Originated with Daniel S. Kriebel, Kankakee County, Illinois. Plants very productive; fruit large; of best quality.

Lincoln. 1. *Col. O. Hort. Soc. Rpt.* 70. 1887. 2. *N. Y. Sta. Bul.* **63**:667. 1893.

Discovered in 1874 near Lincoln's monument, Springfield, Illinois; introduced in 1887 by W. H. Lightfoot of that place. It has no merit as grown at this Station. Plants

vigorous, upright, unproductive; prickles numerous, strong; fruit small, many berries imperfect, juicy, sweet; good; later than Snyder.

Lovett. 1. *N. Y. Sta. Bul.* **63**:667. 1893.

Lovett's Best. 2. Lovett *Autumn Cat.* 16. 1891.

Jewett. 3. *Ill. Sta. Bul.* **30**:325. 1894.

A chance seedling from New Jersey prior to 1885; introduced in 1891 by J. T. Lovett, Little Silver, New Jersey. At this Station the variety is inferior to standard sorts. Plants tall, vigorous, upright, half hardy, unproductive; canes medium in size, green tinged brown, glabrous; prickles numerous, strong; flowers late; fruit small, irregular, roundish; drupelets medium in size, many failing to develop, glossy black, juicy, sprightly; fair; core soft; very late.

Luther. 1. *N. Y. Sta. Bul.* **63**:668. 1893.

A chance seedling found on the grounds of R. D. Luther, Fredonia, New York, by whom it was sent to this Station in 1891. Plants vigorous, fairly hardy; fruit of medium size, juicy, nearly sweet; good.

Lux. 1. *Am. Pom. Soc. Rpt.* 284. 1921.

Offered by W. L. Lux, Topeka, Kansas. Described as very hardy; fruit very large; finest quality; late.

McCracken. 1. *Gard. Mon.* **24**:269. 1882.

Found in the woods near Fulton, Illinois, by a Mr. McCracken. Plants hardy, very productive; fruit large, good; early.

McDonald. 1. *Rural N. Y.* **60**:566. 1901. 2. *Rural N. Y.* **73**:252, fig. 1914. 3. *Ibid.* **76**:419. 1917. 4. Hedrick *Cyc. Hardy Fr.* 288, fig. 251. 1922.

McDonald is a blackberry-dewberry hybrid with rather remarkable qualities of both plants and fruits. The plants are very vigorous, remarkably productive, wholly immune to rust, better able to withstand drought than almost any other bramble, and ripen their crop two weeks before the blackberry season, the first of its kind to bloom and ripen fruit. The canes trail the first season, dewberry-like, but in succeeding seasons send up strong drooping canes partaking more of the blackberry parent. The berries are of largest size, borne in prodigous quantities, jet black and very handsome, among the best in quality, and hang in good condition on the plants for several days after ripening. The variety has one serious fault; it is self-sterile and must be interplanted with another blackberry or dewberry for a pollinizer. McDonald is not proving of very great value in New York and the East, but is much grown in Texas, Oklahoma, and Missouri. This blackberry-dewberry hybrid, probably of Texas origin, has been grown in several southwestern states for the past quarter century. In 1909 the American Pomological Society added McDonald to its recommended list of fruits.

Plants vigorous, spreading and drooping, tender to cold, variable in yield, healthy; canes long, variable in thickness, numerous; leaflets 5, rather small, long-oval, thin, dark green, glossy, with shallowly serrate margins. Flowers early, self-sterile, few, white, in long, open, leafy, slightly prickly clusters; pedicels long, medium in thickness, heavily pubescent, seldom prickly. Fruit very early; large, oblong-conic, jet black; drupelets

numerous, rather small, with good coherence; flesh juicy, firm but tender when fully ripe, pleasantly sprightly if well ripened; quality very good.

Mammoth. 1. *Cornell Sta. Bul.* 34:306. 1891. 2. *Gard. & For.* 10:478. 1897. 3. *U. S. D. A. Farmers' Bul.* 998:23. 1918.

California Mammoth. 4. *Rural N. Y.* 60:550. 1901. 5. *Ibid.* 61:578. 1902.

Black Loganberry. 6. *Am. Pom. Soc. Rpt.* 159. 1920.

Lowberry. 7. Bunyard *Cat.* 19. 1923.

This is another blackberry-dewberry, which, since it partakes most of the blackberry parent, is usually listed with blackberries. The variety is grown very little in New York and the East because quite too tender to cold, but it is a standard bramble fruit in California, esteemed both for its healthy, vigorous, productive plants and for its enormous, handsome, richly flavored fruits. Well grown, the fruits are said to be larger than those of any other of the cultivated brambles. The plants of Mammoth are remarkable in that the canes grow upright several feet and then begin to trail, sometimes attaining a length of 25 or 30 feet. The canes are stout and covered with small, short spines. The plants are propagated from tips and usually fail to come from root cuttings, the method of propagating blackberries. The leaves are semi-evergreen in California. The blossoms are self-sterile and the loganberry is usually set for cross pollination. Two other varieties very similar to Mammoth are offered by nurserymen under the names Tribble and Cory Thornless. Californians say that they are distinct, however. The canes of the Cory Thornless are said to be thornless or nearly so. Mammoth was originated by Judge J. H. Logan, Santa Cruz, California, and is supposed to be a cross between the Texas blackberry and the western dewberry. The name was added to the list of fruits recommended for culture by the American Pomological Society in 1909. The variety has often been confused with Bartel which has also been called Mammoth.

Plants very vigorous, semi-trailing, tender to cold, unproductive in the East, but very productive on the Pacific Slope, healthy; propagated from tips; reported that it cannot be increased by root-cuttings; canes very long, cylindrical to slightly angular, green mingled with a tinge of dull red, pubescent, glandular; prickles variable in length, small and short, unusually numerous, purplish red; leaflets 3, large, ovate, dark green, rugose, pubescent, with dentate margins; petiole short, thick, very prickly. Flowers self-sterile, very late, in loose, leafy clusters; petals white, oblong; pedicels prickly, long, thick, eglandular; calyx tomentose, eglandular. Fruit early midseason, resists drouth very well, said to ship poorly; very large, regular in shape, cylindrical-conic, glossy black; drupelets medium in size, very numerous, with strong coherence; core soft; flesh juicy, tender, rather sour until fully ripe when it becomes pleasantly subacid; quality good to very good if properly ripened.

Mark Twain. 1. *Am. Pom. Soc. Rpt.* 159. 1920.

Introduced by the Sunny Slope Nursery, Hannibal, Missouri. Fruit large, glossy black, melting, sweet; core soft.

Mason Mountain. 1. *Mag. Hort.* 31:122. 1865.

Introduced about 1865 by R. O. Thompson, Nebraska. Plants hardy; fruit large, conic, black, sweet, rich.

May Hardiest. 1. May *Cat.* 12. 1924.

Found on the grounds of the May Seed & Nursery Company, Shenandoah, Iowa; introduced by them in 1924. Supposed to be a seedling as it resembled no other sort they were growing. Plants very hardy; fruit large, jet black.

Maynard. 1. Card *Bush-Fr.* 239. 1898.

Found growing between Lucretia dewberry and Early Harvest blackberry on the farm of C. C. Maynard, Kincaid, Kansas, who sent it out about 1895. Plants productive, thriving on poor soil; fruit borne in clusters, large, round; drupelets few, very large, jet black, sweet.

Maxwell. 1. *Ann. Hort.* 128. 1893.

Maxwell Early. 2. Budd-Hansen *Am. Hort. Man.* **2**:410. 1903.

A chance seedling found in a patch of Kittatinny about 1878 by A. C. Maxwell, Chanute, Kansas. Plants low growing, vigorous, stocky; fruit very large, round, glossy black, soft, juicy; very good; early midseason.

Mersereau. 1. *N. Y. Sta. Bul.* **81**:581. 1894. 2. *Cornell Sta. Bul.* **99**:523, fig. 91. 1895. 3. *Rural N. Y.* **56**:838. 1897. 4. *N. Y. Sta. Bul.* **278**:139. 1906.

This sort is a standard for both commercial and home plantations in the northern and eastern states. It fails in the South because of its susceptibility to the orange-rust. Mersereau is a seedling of Snyder which it surpasses in vigor of plant and in size and quality of fruit, and because the fruits may be picked over a long season. It is above the average blackberry in hardiness. Nurserymen find it a difficult sort to propagate and a good many seem to substitute some other sort for it, so that there are many misnamed " Mersereaus " in the berry plantations of the country. This variety originated with J. M. Mersereau, New York, about 1890, as a seedling of Snyder, which it closely resembles. The American Pomological Society added Mersereau to its list of recommended fruits in 1909.

Plants tall, vigorous, upright-spreading, usually hardy although winter injury is variable, productive, variable in health, markedly susceptible to orange-rust; canes medium in number, stocky, very obtuse-angled, reddish mingled with green, glossy, glabrous, eglandular; prickles large, thick, numerous, in color similar to the suckers; leaflets usually 5, oval, dull, medium green, tinged red late in the season, rugose, pubescent, with serrate margins; petiole thick. Flowers self-fertile, midseason, medium to numerous, in short, compact, slightly leafy clusters; petals white, oblong; pedicels long, slender, glandular. Fruit late midseason, period of ripening long; large, roundish to oblong-conic, glossy black, holding its color after picking; drupelets large, round, with strong coherence; core soft; flesh firm but tender, juicy, rather sprightly until fully ripe when it becomes sweet, rich and pleasantly flavored; quality very good.

Miller. 1. Storrs & Harrison *Cat.* 154. 1919. 2. *Am. Pom. Soc. Rpt.* 160. 1920.

Originated by D. J. Miller, Akron, Ohio, about 1909; introduced in 1919 by Storrs & Harrison, Painesville, Ohio. The variety has shown considerable promise on the first year's trial at this Station. Plants tall, vigorous, upright-spreading, productive; canes stocky, green with reddish tinge, nearly glabrous; prickles numerous, large; fruit uniformly large, irregular cylindrical-conic; drupelets medium in size and number, cohering strongly, black, juicy, melting, sweet; very good; core hard; midseason.

MERSEREAU

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Minnewaska. 1. *Rural N. Y.* **43**:559, fig. 436. 1884. 2. *N. Y. Sta. Bul.* **63**:668. 1893.

Originated with A. J. Caywood, Marlboro, New York, prior to 1884; said to be a cross between Kittatinny and a wild blackberry. At this Station the variety is tender to cold. Minnewaska was placed in the catalog of the American Pomological Society in 1879, and remained in the last catalog in 1909. Plants tall, vigorous, upright, half hardy, moderately productive; canes stocky, glabrous; prickles numerous, large, strong, green; flowers late; fruit large, roundish to slightly elongated; drupelets medium in size, strongly coherent, glossy black, juicy, rather soft, sweet when fully ripe; good; midseason.

Missouri Mammoth. 1. *Ill. Hort. Soc. Rpt.* 113. 1868.

Introduced from Missouri more than half a century ago. Described as producing fruit of large size, black, firm, rich, juicy, sweet, without core; season early, ripening over a long period.

Montmorency. 1. *Am. Pom. Soc. Cat.* 24. 1909.

Listed as a promising sort for the upper Missouri and Mississippi Valley in the catalog of the American Pomological Society for 1909.

Nanticoke. 1. Allen *Cat.* 28. 1912. 2. *Rural N. Y.* **73**:764. 1914.

Introduced in 1912 by W. F. Allen, Salisbury, Maryland, who thinks it came originally from Norway. As grown at this Station the variety is of little value. Plants of medium height, very vigorous, upright-spreading, tender to cold, moderately productive; canes stocky, greenish with reddish tinges, pubescent; prickles numerous, strong, large; fruit of medium size, ovate; drupelets medium in size and number, many failing to develop, glossy black, moderately juicy, rather soft, sprightly; good; core soft; season very late and long.

Needham. 1. *Mag. Hort.* **18**:490. 1852.

Introduced about 1850 by J. S. Needham of Massachusetts. It seems to have been of little value; unproductive in most localities; fruit small, lilac color, sweet, insipid; late.

Nevada. 1. *Mich. Sta. Bul.* **55**:26. 1889.

On trial at the Michigan Station but did not prove valuable. Plants usually hardy, productive; fruit large, oval, black; good; late.

Neverfail. 1. *Cornell Sta. Bul.* **34**:308. 1891.

Said to have originated in central Ohio. The Cornell Station received specimens from F. L. Wright, Plainfield, Michigan, who obtained it from Indiana. Plants very vigorous, but never producing fruit.

Newman Thornless. 1. *Cultivator* **4**:52. 1856.

Discovered in the wild by Jonas Newman, Milton, New York, prior to 1857. Plants of medium height, moderately vigorous, usually unproductive; canes slender with very few small prickles; fruit medium in size, roundish oval, black, rather acid; good when fully ripe.

Ohmer. 1. *Ann. Hort.* 128. 1893. 2. *N. Y. Sta. Bul.* **278**:136. 1906.

Introduced in 1892 by N. Ohmer, Dayton, Ohio, who found it in a garden. In some places Ohmer is an excellent late sort, but as grown at this Station it is inferior to standard varieties. Plants moderately vigorous, spreading, fairly hardy, moderately productive;

canes stocky with few prickles; fruit above medium size, roundish; drupelets large, juicy, acid; good; late.

Pan American. 1. Townsend *Cat.* 28. 1923.

Introduced in 1922 by E. W. Townsend & Sons, Salisbury, Maryland. Plants were received from a New Jersey grower who stated that the variety came from Brazil. Described as very similar to Black Diamond, but differs in having leaves of a different shape.

Paradox. 1. Burbank *Cat.* 29. 1893.

A fourth generation seedling from a cross between Crystal White blackberry and Shaffer raspberry raised by Luther Burbank, Santa Rosa, California, who introduced it in 1893. Plants intermediate between the parents; fruit large, oval, light red; superior quality.

Parish Pink. 1. Card *Bush-Fr.* 238. 1898.

Mentioned by Card as "Another white variety of no more value than the rest."

Parnell. 1. *La. Sta. Bul.* **3**:45. 1890.

On trial at the Louisiana Station in 1890. Originated by a Mr. Normand, Marksville, Louisiana.

Perfection.

Gray's Perfection. 1. Gray *Cat.* 1910–11.

Originated in 1907 by Alvia G. Gray, Salem, Indiana, who introduced it in 1910. Said to be a cross between Wilson and Lovett. Its record at this Station has been unsatisfactory. Plants upright, rather tender to cold, unproductive; canes stocky. Mr. Gray describes the fruit as very large, oblong, glossy black, very firm, with flavor of Wilson; late midseason.

Peruvian. 1. Card *Bush-Fr.* 227. 1917.

Described by Card as a variety of the common European blackberry. Plants very vigorous and dense; canes very long and large; fruit small, sweet, lacking character.

Piasa. 1. *Mich. Sta. Bul.* **169**:160. 1899.

Piasasaw. 2. *N. J. Hort. Soc. Rpt.* 192. 1900.

A chance seedling found by the roadside by E. A. Riehl, Alton, Illinois. It was sent out about 1895 and introduced in 1900 by Mr. Riehl. Plants dwarfish, spreading, unproductive; fruit small, irregular oblong, compact, lacking juiciness, mild; fair; midseason.

Purple Fruited. 1. *Meehans' Mon.* **5**:185. 1895.

Mentioned by E. E. Bogue, Orwell, Ohio, as having purple fruit when ripe.

Queen. 1. *Texas Nur. Cat.* 33. 1909.

Introduced about 1900 by the Texas Nursery Company, Sherman, Texas. Said by them to be a native of the black land belt of northern Texas. At this Station the plants are tender to cold and unproductive. They are semi-trailing the first season, becoming upright later.

Rathbun. 1. *Rural N. Y.* **54**:587. 1895. 2. *Wis. Sta. Bul.* **72**:23. 1898. 3. *Rural N. Y.* **59**:562. 1900. 4. *N. Y. Sta. Bul.* **278**:143. 1906.

The berries of Rathbun commend the variety highly; they are large, handsome, and very good in quality. The plants, however, are far from flawless; they are only moderate

RATHBUN

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in vigor and productiveness, sucker sparingly, are susceptible to the orange-rust, are tender to cold, and bear flowers that must be cross pollinated. Despite this long list of faults, the variety is well liked in mild climates. The plants propagate by rooting at the tips. Rathbun originated about 1885 with Alvin Rathbun, Silver Creek, New York. It is a chance seedling which sprang up near a planting of Early Harvest and Kittatinny. Its habit of growth, however, indicates that it may be a blackberry-dewberry hybrid. Rathbun was introduced by James Vick's Sons, Rochester, New York. In 1909 the American Pomological Society added the variety to its list of recommended fruits.

Plants branching freely, upright-spreading to drooping, half-hardy, variable in health, susceptible to double-blossom in the South, moderately productive; propagated by tips as well as by suckers; canes rather few, very obtuse-angled, dull, pale greenish, glabrous; prickles tinged red at the base; leaflets 3, ovate, thick, dull, dark green, rugose, with coarse, serrate margins; petiole long. Flowers imperfect, self-fertile, large, few to medium, in short, open, leafy, almost spineless clusters; pedicels long, heavily pubescent, glandular; Calyx heavily pubescent; stamens sometimes irregular in formation. Fruit early, said to resist drouth very well; very large but somewhat variable, roundish to slightly elongated, glossy black; drupelets large, round, numerous, with strong coherence; core soft; flesh juicy, firm, sweet, rich; quality very good but variable.

Red Cluster. 1. *Rural N. Y.* 50:670. 1891.

Sent to the trial grounds of the *Rural New-Yorker* in 1886 by W. W. Hilborn, Leamington, Ontario. Fruit small, tender, sweet.

Reid. 1. *Am. Pom. Soc. Rpt.* 160. 1920.

Offered for sale by the Long Floral & Nursery Company, Dallas, Texas. Plants described as vigorous, upright, hardy, almost free from suckers; fruit large, delicious; early.

Reyner. 1. *N. Y. Sta. Bul.* 81:582. 1894.

Received at this Station in 1892 for trial from S. R. Alexander, Bellefontaine, Ohio. Plants vigorous, moderately hardy, unproductive; canes large, greenish, with few prickles; fruit of medium size, roundish or slightly elongated; drupelets large, sweet; good.

Robison. 1. Munson *Cat.* 10. 1899.

Originated in 1895 with Willard Robison, Cisco, Texas. The variety did not succeed at this Station. The American Pomological Society cataloged it in 1901, but it was removed at the next revision of the catalog in 1909. Plants vigorous, upright, much branched; canes stocky, moderately thorny; fruit large, round, compact, black, firm, sweet; good; late.

Sable Queen. 1. *Horticulturist* 24:73, fig. 1869.

Found in an old pasture in Essex County, Massachusetts, prior to 1849 by Daniel Graves. The variety was placed in the catalog of the American Pomological Society in 1883 and removed in 1897. Plants vigorous and productive; fruit variable in size, usually small, soft; good

Sadie. 1. *Col. O. Hort. Soc. Rpt.* 70. 1887.

Introduced about 1887 by Levi Hawbaker, Winchester, Iowa, as very hardy in that State. Fruit large, firm, sweet, without core; very early.

St. Jo. 1. *Mo. Hort. Soc. Rpt.* 301. 1905.

Mentioned in 1905 as a new sort gaining some prominence near Springfield, Missouri.

Sanford. 1. *Ann. Hort.* 128. 1893. 2. *N. Y. Sta. Bul.* **111**:284. 1896.

A chance seedling found in a clearing by Henry Merrells, North Sanford, New York; introduced in 1893 by C. W. Graham, Afton, New York. The variety has little value as grown at this Station. Fruit small, oblong to oval, firm, moderately juicy, pleasant; fair.

Santa Rosa. 1. Burbank *Cat.* 7. 1920. 2. *Am. Pom. Soc. Rpt.* 160. 1920.

Originated about 1902 by Luther Burbank, Santa Rosa, California, who introduced it in 1912. This is a thornless sort descended from a West Virginia blackberry. Plants very vigorous, canes reaching a length of twenty-five feet in a season; propagates by tip-rooting, thornless, very productive; fruit medium to large, black, firm, sweet; excellent; late.

Scruggs. 1. *Am. Pom. Soc. Rpt.* 160. 1920.

Offered without description by E. W. Townsend & Sons, Salisbury, Maryland.

Sebastopol. 1. Burbank *Cat.* 7. 1920. 2. *Am. Pom. Soc. Rpt.* 160. 1920.

Of the same origin as Santa Rosa, and differs from that sort in being a few days later and a little larger.

See Early. 1. *Ill. Hort. Soc. Rpt.* 125. 1878.

Originated near Centralia, Illinois, about 1878. Said to be so similar to Brunton Early that it might prove to be that variety.

Sensation. 1. *Am. Pom. Soc. Rpt.* 284. 1921.

Introduced by L. G. Rathbun & Son, Orland, Indiana. Plants very hardy, bearing a full crop in the summer and a light autumn crop on new canes; fruit very large.

Snowbank. 1. Burbank *Cat.* 5. 1920. 2. *Am. Pom. Soc. Rpt.* 160. 1920.

A descendant of Iceberg, originated by Luther Burbank, Santa Rosa, California, in 1906, and introduced by him in 1915. Plants upright, not hardy, unproductive at this Station; fruit of medium size, cylindrical, pearly white tinged yellowish, glossy, moderately juicy, mild, sweet; good; core soft; midseason.

Snyder. 1. *U. S. D. A. Rpt.* 390. 1873. 2. *Cornell Sta. Bul.* **99**:521, fig. 100. 1895. 3. *N. Y. Sta. Bul.* **278**:140. 1906. 4. Card *Bush-Fr.* 228, Pl. VII. 1917.

Because of the great vigor, good health, remarkable productiveness, and hardiness surpassed by no other blackberry, Snyder has been a standard commercial sort for many years. The fruits are far from being as satisfactory as the plants; they are not inviting in appearance, turn red after picking, and the quality is mediocre. Long a standard, several other blackberries are now more desirable, although the variety is still grown from the Atlantic to the Pacific except in the South. Snyder does particularly well on poor, light soils and withstands neglect rather better than most other sorts, except in the matter of withstanding drouths in a dry season. Both plants and berries suffer, the berries frequently withering before ripening. Snyder is a wilding found by Henry Snyder in 1851 on his farm at Laporte, Indiana. About 1860 the Laporte Horticultural Society named it

SNYDER

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Snyder and recommended it for general culture. The American Pomological Society added the variety to its fruit catalog list in 1875.

Plants tall, vigorous, upright, unusually hardy, healthy, productive; canes numerous, stocky, furrowed, glossy, pubescent, glandular, greenish red mingled with brown; prickles very large, thick, numerous, reddish at the base; leaflets mostly 5, ovate-lanceolate, smooth, pubescent, with finely serrate margins; petiole thick, with but few prickles. Flowers self-fertile, very early, in long, compact, somewhat leafy clusters; petals white, oblong; pedicels long, glandular. Fruit late midseason, injured by drouth; inferior in size, hemispherical, black, quickly becoming reddish black or brownish red; drupelets large, round, with good coherence; core soft; flesh juicy, firm, sweet, rather poorly flavored; quality good only when well grown and well colored.

Soft Core. 1. *Am. Pom. Soc. Rpt.* 159. 1920.

Originated about 1909 by J. M. Mack, Fallbrook, California; introduced in 1917. Plants were sent to this Station in 1918 by the United States Department of Agriculture. Soft Core is a cross between Texas Early blackberry and Gardena dewberry. Plants vigorous, upright, tender to cold, productive where hardy; fruit large, soft, sweet, spicy, rich; core soft.

Sonderegger Earliest. 1. Sonderegger *Cat.* 22. 1918.

A chance seedling found in an old orchard about 1911 by Arthur Modglin of Illinois, where Snyder and Early Harvest had previously been grown; introduced about 1918 by Sonderegger Nursery & Seed House, Beatrice, Nebraska. At this Station the variety is too tender and unproductive to be of value. Plants of medium size and vigor, tender, unproductive; canes slender, pubescent with a moderate number of slender prickles; flowers very late; fruit of medium size, irregular, cylindrical-conic; drupelets medium in size and number, black, juicy, moderately firm, subacid; fair; core medium; midseason.

Spaulding. 1. *Austin Nur. Cat.* 21. 1901.

A chance seedling which originated with a Mr. Spaulding, Gonzales County, Texas, who introduced it about 1890. As grown at this Station the plants require winter protection and are unproductive unless so treated. Plants vigorous, semi-trailing, moderately productive; canes moderately stocky with numerous slender prickles; fruit large, long, cylindrical; drupelets numerous, cohering strongly, glossy black, moderately juicy, firm, sprightly; good; core soft; early.

Stayman Early. 1. *Ont. Fr. Gr. Assoc. Rpt.* 47. 1883. 2. *N. Y. Sta. Rpt.* 337. 1887.

Introduced about 1883 by Dr. J. Stayman, Leavenworth, Kansas. Plants not hardy; propagates by tips; fruit small; poor.

Sterling Thornless. 1. *U. S. D. A. Rpt.* 394. 1891. 2. Card *Bush-Fr.* 239. 1898.

A chance seedling, found on the farm of John F. Sterling, Benton Harbor, Michigan, in a field where Wilson and Lawton had been growing. Plants similar to Wilson, but nearly thornless; fruit borne in loose clusters with long pedicels like dewberries, medium to large size, roundish oblong; drupelets large, loosely set, moderately firm, juicy, sweet, with dewberry flavor.

Stone Hardy. 1. *Am. Pom. Soc. Cat.* 18. 1881. 2. *N. Y. Sta. Bul.* **278**:140. 1906.

A chance seedling which originated near Rockford, Illinois, prior to 1881. Similar to Snyder, although some reports state that the fruit is larger and later than that of Snyder. Stone Hardy was placed in the fruit list of the American Pomological Society in 1881, and remained in the last list in 1909. Plants vigorous, upright, fully hardy, productive; canes slender with numerous long prickles; fruit small, averaging about the size of Snyder, roundish, juicy, nearly sweet; good.

Strawberry Flavored. 1. *Am. Pom. Soc. Rpt.* 159. 1920.

Originated about 1909 by J. M. Mack, Fallbrook, California. Introduced in 1917. The variety is a cross between Himalaya blackberry and Cuthbert red raspberry. The plant is of the type of Himalaya and shows considerable winter injury at this Station. Plants tall, vigorous, drooping, tender to cold, productive; canes stocky; prickles numerous, thick, strong, reddish; fruit of medium size, irregular, roundish, slightly elongated; drupelets large, of medium coherence, glossy black, juicy, tender, subacid; good; core soft; late; everbearing in California.

Success. 1. *N. Y. Sta. Bul.* **81**:582. 1894.

Received at this Station in 1892 from L. W. Carr & Company, Erie, Pennsylvania. Plants moderately vigorous, fairly hardy, productive; canes greenish, with numerous prickles; fruit above medium in size, roundish; drupelets of medium size, juicy, black; good.

Sugar Plum. 1. Childs *Cat.* 132. 1904. 2. *Mich. Sta. Bul.* **213**:11. 1904.

Introduced in 1904 by John Lewis Childs, Floral Park, New York. At the Michigan Station the variety was without merit. The plants resemble those of the red raspberry; fruit of medium size, irregular, roundish, dull dark red, astringent and disagreeable.

Superb. 1. Burbank *Cat.* 5. 1920. 2. *Am. Pom. Soc. Rpt.* 284. 1921.

Originated by Luther Burbank, Santa Rosa, California. The variety is of the type of Himalaya, the plants being described as more productive; the fruit larger, highly flavored, sweet and delicious.

Tartarian. 1. *Farmer Seed & Nur. Cat.* 106. 1918.

Introduced by the Farmer Seed & Nursery Company, Faribault, Minnesota. Plants described as strong, free from rust, very hardy and productive; fruit large, bright black, sweet, melting; of fine quality; core soft; season long.

Taylor. 1. *Cult. & Count. Gent.* **42**:150. 1877. 2. *Cornell Sta. Bul.* **99**:523, fig. 104. 1895. 3. *N. Y. Sta. Bul.* **278**:137. 1906.

Taylor's Prolific. 4. *Ia. Hort. Soc. Rpt.* 418. 1882.

Long a favorite commercial sort to follow Snyder, Taylor is now passing from cultivation because of faults of both fruits and plants. While the plants are hardy and remarkably immune to rust, they are not productive, or at best moderately so, and the fruits are only fair in quality and appearance. The plants also have the fault of overbearing in which case the fruits are small and poor in flavor. To offset this characteristic the plants should be pruned more closely than any other blackberry except Early Harvest, which often has the same failing. The plants may be told in blackberry plantations by the

greenish yellow canes, usually tinted with red. The thorns are large and numerous, making picking more unpleasant than with most other varieties of this fruit. The long, thimble-like berries are borne in large clusters. Taylor may still be planted to close the blackberry season in New York, but is becoming less and less popular even for this purpose. This is an old variety of unknown parentage, introduced by a Mr. Taylor, of Spiceland, Indiana, about 1867. In 1881 Taylor was added to the recommended fruit list of the American Pomological Society.

Plants upright-spreading, very hardy, variable in yield, variable in resistance to orange-rust; canes numerous, angular or nearly cylindrical, pale green mingled with red, becoming light brown with trace of yellow at maturity, lightly pubescent, glandular; prickles small to large, short, slender, numerous, green or tipped with dull brown; leaflets 3–5, oblong-lanceolate, thick, very lightly rugose, pubescent, with even and finely serrate margins; petiole long, glandular. Flowers early, 5–9, in long, loose, leafless, prickly clusters; pedicels long, thickly pubescent, prickly; calyx with few glands. Fruit late, borne in immense clusters, medium or below in size, elongated-conic, glossy black; drupelets rather small, uniform, with strong coherence; core soft, white; flesh rather soft, juicy, sweet, rich, pleasantly flavored; quality very good to best.

Tecumseh. 1. Card *Bush-Fr.* 231. 1898.

Originated in western Ontario. Of the type of Taylor but less hardy than that sort.

Texas Early. 1. Card *Bush-Fr.* 232. 1898. 2. Hedrick *Cyc. Hardy Fr.* 290. 1922.

Crandall. 3. *Cal. St. Bd. Hort. Bien. Rpt.* 234. 1885–86. 4. *U. S. D. A. Farmers' Bul.* 1399:14. 1924.

Macatawa. 5. *Berrydale Gard. Cat.* 15. 1913.

Introduced into California from Texas prior to 1885 by Dr. J. R. Crandall, Auburn, California, after whom the variety was renamed. The original name, Texas Early, is retained here, although Crandall is more generally used. Macatawa, introduced in 1913, proved to be identical with Texas Early at this Station. In southern California this sort is popular for its earliness, long-ripening period, and high quality. As grown at this Station the plants require winter protection, and the fruit is inferior to that of standard blackberries. It was placed in the catalog of the American Pomological Society in 1901 as Crandall, remaining in the last catalog in 1909. Plants vigorous, semi-trailing, not hardy, productive, with few suckers; fruit large, firm, sweet; very good; very early.

Texas Evergreen. 1. Lovett *Cat.* No. 3, 5. 1915.

Introduced in 1915 by J. T. Lovett, Little Silver, New Jersey, with the statement that it had been brought from South Africa by a Mr. Texas. As grown at this Station the plants are tall, vigorous, upright-spreading, moderately productive; canes very stocky with numerous thick, strong prickles; fruit of medium size, irregularly cylindrical, conic to short-conic; drupelets medium in number, large, glossy black, juicy, melting, subacid; good; core hard; late.

Texas Red. 1. *Rural N. Y.* 44:868. 1885.

Texas Hybrid. 2. Card *Bush-Fr.* 238. 1898.

Described by T. V. Munson in 1885 as having plants of a trailing half-dewberry habit, thorny; fruit borne in clusters, clear, bright pink, very soft, sweet and pleasant; earlier than Snyder.

Topsy. 1. *Rural N. Y.* **46**:638. 1887. 2. *Am. Gard.* **10**:244. 1889.
Childs' Everbearing Tree. 3. Childs *Cat.* 150. 1893.
Childs' Tree. 4. *N. Y. Sta. Bul.* **278**:144. 1906.

Plants of Topsy were sent to the trial grounds of the *Rural New-Yorker* in 1885 by J. T. Lovett, Little Silver, New Jersey. John Lewis Childs, Floral Park, New York, introduced it as Childs' Everbearing Tree blackberry about 1892. The variety has little merit as grown at this Station. Plants very dwarf, not hardy, unproductive; canes numerous, slender, covered with strong prickles; fruit variable in size from small to medium, roundish, acid; inferior in flavor.

Trinity Early. 1. *Ga. Sta. Bul.* **33**:519, fig. 1896.

Received at the Georgia Station prior to 1896 from the Dallas Nursery Company, Dallas, Texas. Plants dwarfish, trailing the first year, becoming more erect with age, lacking vigor, healthy, moderately productive; prickles very numerous, weak; fruit small, round; drupelets large, brisk and sprightly, but sweet; very early.

Triumph. 1. *Am. Pom. Soc. Cat.* 16. 1897.
Western Triumph. 2. *Gard. Mon.* **12**:158. 1870.

A chance seedling found in Lake County, Illinois, in 1858, by William Biddle, Waukegan, Illinois. The variety was placed in the catalog of the American Pomological Society in 1883 and remained in the last catalog in 1909. Plants vigorous, hardy, very productive; fruit of medium size, roundish oblong; drupelets large, black, firm, juicy, sweet, rich; good; midseason.

Truman Thornless. 1. *U. S. D. A. Pom. Rpt.* 264. 1892.

Introduced by George P. Peffer, Pewaukee, Wisconsin, thirty years ago. Canes nearly thornless; plants rather dwarf, not very productive; fruit large; good; ripens early.

Tyler. 1. *N. Y. Sta. Bul.* **278**:141. 1906.

Received at this Station in 1897 from Birdseye & Son, Stanley, New York. Plants vigorous, very hardy, but less productive than Snyder; fruit medium in size, slightly elongated, variable in size and shape, nearly sweet; fair.

Veitchberry. 1. Laxton Bros. *Cat.* 42, Pl. 1925.

A cross of the November Abundance raspberry by the English blackberry. Introduced by Laxton Brothers, Bedford, England, in 1925. Plants vigorous, semi-erect; flowers self-fertile, setting perfect fruits; fruit twice the size of the ordinary blackberry, color of a well ripened mulberry, sweet with the combined flavor of both parents.

Wachusett. 1. *Am. Jour. Hort.* **4**:220, fig. 1868. 2. *N. Y. Sta. Bul.* **278**:137. 1906.
Wachusett Thornless. 3. *W. N. Y. Hort. Soc. Rpt.* 54. 1879.

Found growing wild on Wachusett Mountain, Massachusetts, about 1863. Hardiness and freedom from thorns were its chief merits, but unproductiveness prevented it from

becoming popular. Wachusett was added to the catalog of the American Pomological Society in 1881 and remained in the last catalog in 1909. Plants moderately vigorous, hardy, usually unproductive; canes moderately stout, purplish red when mature; prickles very few and small; fruit small to medium in size, roundish or slightly elongated, glossy black, juicy, sweet; good; early midseason.

Wallace. 1. *Cult. & Count. Gent.* **42**:150. 1877.

Introduced about 1862 by a Mr. Wallace, Wayne County, Indiana. Plants stocky, upright, healthy and hardy; fruit the size of Lawton, sweeter and better than Kittatinny; season a week later than Snyder.

Wapsie. 1. *Ohio Hort. Soc. Rpt.* 192. 1888.

Had proved hardy and valuable for five years previous to 1888 with T. K. Bloom, Lisbon, Iowa.

Ward. 1. *Rural N. Y.* **62**:572. 1903. 2. *N. J. Hort. Soc. Rpt.* 38, 102. 1904. 3. Hedrick *Cyc. Hardy Fr.* 290. 1922.

A chance seedling found about 1900 by Thomas H. Ward, Manalapan, New Jersey; supposed to be a seedling of Kittatinny which it resembles, but it is superior to that sort in vigor, productiveness, freedom from rust, and quality of fruit. It is especially valuable in New Jersey as a late variety but at this Station it is not fully hardy. Ward appeared in the last catalog of the American Pomological Society in 1909. Plants tall, vigorous, upright-spreading, half-hardy, moderately productive; canes stocky, green tinged reddish brown, nearly glabrous; prickles medium in number, large, strong; fruit of medium size, irregular cylindrical-conic, glossy black, juicy, melting, subacid; good; core hard; late.

Warren. 1. *W. N. Y. Hort. Soc.* 119. 1880.

New in 1880. Plants fairly hardy and productive; fruit similar to that of Snyder in size and quality; ripens a week before Kittatinny.

Washington. 1. *Mag. Hort.* **25**:397. 1859.

Raised by Prof. C. G. Page, Washington, District of Columbia, who exhibited it as new in 1859. Fruit large, black, sweet; good.

Watt. 1. *Am. Pom. Soc. Sp. Rpt.* 82. 1904–05.

A chance seedling found growing in an orchard near Lawrence, Kansas, prior to 1905. Plants at this Station require winter protection and are very susceptible to rust. Plants tall, vigorous, upright-spreading, tender to cold, moderately productive when protected; canes stocky, tinged red, glabrous; prickles numerous, large, strong; fruit large, irregular, oblong, tapering slightly; drupelets large, cohering strongly, glossy black, juicy, melting, sweet, pleasant; very good; core soft; midseason.

Weston. 1. *Gard. Mon.* **12**:371. 1870.

Originated prior to 1870 with Adain Durkes, Weston, Missouri. By him it was considered more productive than Lawton; long ripening season.

White Cluster. 1. *Cult. & Count. Gent.* **32**:244. 1868.

Discovered about 1856 in Lycoming County, Pennsylvania. Plants very vigorous, hardy and productive; fruit cream colored.

Wilson. 1. *Am. Pom. Soc. Cat.* 16. 1897.

Wilson Early. 2. *Mag. Hort.* **32**:110. 1866. 3. *N. Y. Sta. Bul.* **63**:669. 1893.

Discovered about 1854 by John Wilson, Burlington, New Jersey. For a number of years this was a popular variety, especially valuable in New Jersey, where large fruits, earliness and productivity made it the leading sort. As grown at this Station the plants lack hardiness, must be covered to produce satisfactory crops, and many imperfect flowers, chiefly double, are borne. It is possible that this variety contained a mixture soon after its introduction as two types of plants are mentioned in early descriptions, one being erect and branching, the other slender and trailing, the latter form sometimes rooting at the tips. The American Pomological Society placed this variety in its catalog in 1867; it remained in the last catalog in 1909. Plants dwarfish, upright, moderately vigorous, half-hardy, productive where hardy; canes stocky, roundish, pubescent with numerous small prickles; flowers inclined to doubling; fruit large, oblong to oval, slightly pointed; drupelets large, many failing to develop as grown here, glossy black, firm, juicy, sweet; good; early.

Wilson, Jr. 1. *Gard. Mon.* **27**:208. 1885. 2. *N. Y. Sta. Bul.* **63**:669. 1893.

Raised by William Parry, Parry, New Jersey, in 1875, from seed of Wilson. The variety is very similar to its parent and like that sort requires winter protection in this latitude. Wilson, Jr., was placed in the catalog of the American Pomological Society in 1885 and removed in 1899. Plants intermediate in habit between dewberries and blackberries, dwarfish, moderately vigorous, tender to cold, moderately productive; canes tinged reddish; fruit variable in size, medium to very large, roundish to slightly elongated; drupelets large, sometimes imperfectly developed, very juicy, acid; good to very good; core hard; early.

Woodford. 1. *Mass. Sta. Bul.* **44**:17. 1897.

On trial at the Massachusetts Station in 1896. Plants not vigorous, hardy, unproductive; fruit large, attractive; good.

Woodland. 1. *N. Y. Sta. Bul.* **81**:582. 1894.

Received at this Station in 1892 from W. H. Phillips, Staunton, Indiana. Plants vigorous, tender to cold, productive; fruit medium in size, roundish; drupelets large, with pleasant flavor; good.

CHAPTER VII

VARIETIES OF DEWBERRIES

Aughinbaugh. **1.** *Gard. Mon.* **17**:304. 1875. **2.** Bailey *Ev. Nat. Fruits* 355. 1898. **3.** Hedrick *Cyc. Hardy Fr.* 290. 1922.

Aughinbaugh is little grown in New York and the East, but before the advent of the loganberry was much grown in California and the Pacific slope. It is now rapidly passing into oblivion, but is notable as one of the first cultivated representatives of the western dewberry. The plants are seldom satisfactory as to vigor and productiveness. This variety, the culture of which is confined to California, was propagated and sold by a Mr. Aughinbaugh about 1875. Aughinbaugh found the variety growing wild on the peninsula of Alameda. It achieved some popularity, but, being pistillate, required pollen from another sort to set fruit, and for this reason became unpopular, and has now been nearly lost from sight.

Plants inferior in vigor, drooping or trailing, tender to cold in the East, variable in yield, healthy; canes slender, pubescent; prickles slender; leaflets evergreen, 3–5, small to medium, ovate, dark green, with serrate margins. Flowers pistillate, requiring pollen from another variety to set fruit. Fruit early; medium in size, somewhat oblong, black; drupelets more or less pubescent, numerous, small; flesh juicy, tender, sweet, pleasantly flavored; quality good.

Aus-Lu. **1.** Townsend *Cat.* 27. 1923.

Introduced in 1923 by E. W. Townsend & Sons, Salisbury, Maryland. Said to be a cross between Mayes and Lucretia. Plants as productive as those of Mayes; fruit large, mild, sweet; early.

Austin Thornless. **1.** Parker & Son *Cat.* 12. 1924.

Originated about 1918 with J. Parker, Tecumseh, Oklahoma. Introduced in 1924 by J. M. Parker & Son Nursery Company, Fayetteville, Arkansas. Said to be a seedling of Mayes and similar to that variety, but thornless.

Bartel. **1.** *Rural N. Y.* **42**:638. 1883. **2.** *Cornell Sta. Bul.* **34**:300. 1891. **3.** *Gard. & For.* **4**:19, fig. 4. 1891. **4.** Bailey *Ev. Nat. Fruits* 335. 1898.

Bartel's Mammoth. **5.** Bailey *Ev. Nat. Fruits* 348. 1898.

Bartel is notable as the first dewberry to find favor with American pomologists. In the early days of its culture the variety was known for its exceedingly large, handsome berries, characters which had much to do with the popularity of Bartel and dewberries in general. Bartel was introduced early in the seventies by a Dr. Bartel, Huey, Illinois. The variety was first called Bartel's Mammoth with various spellings of the word Bartel. Although once considerably grown, due primarily to extensive advertising, Bartel is now rarely found in commercial plantings, better dewberries having taken its place. (For fuller details of history see page 196.) Plants very vigorous, trailing, tender to cold; fruit large to very large; flesh firm, sour and poor in flavor; quality poor.

Bauer. 1. *Am. Gard.* 12:84. 1891.

Sent out about 1890 by C. P. Bauer, Judsonia, Arkansas, as a premium for plant orders. Described as very vigorous, but unproductive; fruit fine.

Belle of Washington. 1. *Cornell Sta. Bul.* 34:310. 1891. 2. Bailey *Ev. Nat. Fruits* 354. 1898.

Sent out from Avon, Washington, in 1891 with Skagit Chief.

Bonnett. 1. *Austin Nur. Cat.* 21. 1901.

A white dewberry found near Austin, Texas, and described as superior to other white sorts. Fruit large, firm, makes a white jam and jelly.

Champion. 1. *U. S. D. A. Farmers' Bul.* 998:24. 1918.

A variety of the loganberry type which is grown on the Pacific Coast.

Coleman. 1. *La. Sta. Bul.* 27:954. 1894.

A white dewberry on trial at the Louisiana Station in 1893. Plants productive; fruit excellent.

Dallas. 1. *Trans. Am. Hort. Soc.* 99. 1886. 2. *U. S. D. A. Farmers' Bul.* 643:12. 1915.

Originated in Texas prior to 1886. Said to be a blackberry-dewberry hybrid. In Texas this is a standard sort. The fruits are of good size, firm and of high quality. At this Station the plants are tender to cold and unproductive. The American Pomological Society placed Dallas in its catalog in 1897. Plants very vigorous, drooping; canes long, vine-like, very thorny; fruit large, glossy black, firm; very good; early.

Delicious. 1. Townsend *Cat.* 29. 1923.

E. W. Townsend & Sons, Salisbury, Maryland, who introduced this variety in 1922, state that it was received by them from one of their customers in the South who had grown it for several years. Said to have been found in the wild in Texas. Plants described as hardy; fruit large, firm, delicious; later than Mayes.

Fairfax. 1. *Rural N. Y.* 48:606. 1889.

Introduced about 1884 by C. A. Uber, Fairfax County, Virginia, who found it growing on a stony, unproductive hillside where it bore very large, fine-flavored berries. When removed to a rich, moist soil, the plants grew very vigorously, but failed to produce fruit.

Gardena. 1. *Ore. Hort. Soc. Rpt.* 80. 1911. 2. Card *Bush-Fr.* 219. 1917. 3. Hedrick *Cyc. Hardy Fr.* 290. 1922.

Nearly worthless in New York and in the East, Gardena is valuable in southern California. The plants are described as healthy, very productive, and as ripening their crop early and during a short period. The berries are large, firm of flesh, rich and sweet in flavor, and of high quality. The crop ripens about ten days before that of the well-known Lucretia. This variety is of western origin, named from Gardena, California. It is supposed to be a seedling of Premo.

Plants vigorous, healthy, trailing, hardy in the West but tender to cold in the East, variable in yield; canes slender, cylindrical, greenish, glabrous, without bloom, eglandular; thorns small, numerous, greenish. Fruit early; large, glossy black; flesh juicy, firm, rich, sweet, pleasantly flavored; quality good.

Geer. 1. *Cornell Sta. Bul.* 34:287. 1891.

Discovered in a woodlot on the property of a Mrs. Geer, Plainfield, Michigan, by F. L. Wright of that place, who transferred plants to his garden in 1887. Plants fairly productive; fruit small.

General Grant. 1. *Cornell Sta. Bul.* 34:308. 1891.

Introduced about 1886 by Charles A. Green, Rochester, New York, as a premium for subscription to his *Fruit Grower*. The variety had little merit and never became prominent.

Golden Queen. 1. Card *Bush-Fr.* 220. 1917.

According to Card this variety was mentioned in the *Horticultural Gleaner* for 1898 " as a new dewberry of golden yellow color, large and productive."

Guadeloupe. 1. Card *Bush-Fr.* 220. 1917. 2. *Am. Pom. Soc. Rpt.* 160. 1920.

Found in the wild by Otto Locke, New Braunfels, Texas. Introduced by the Comal Springs Nursery of that place. Plants vigorous and productive; fruit large, oblong, of darkest color, sweet; early.

Haupt. 1. *Austin Nur. Cat.* 23. 1909.

Found in the wild in Wharton County, Texas, by Col. W. W. Haupt, Kyle, Texas, about 1898, and introduced a few years later by the Austin Nursery Company, Austin, Texas. Thought to be a cross between a dewberry and a blackberry. The introducers state that, as it will not pollinate itself, two or three strains are mixed in each order to provide for cross pollination. The variety is of no value at this Station as it kills to the ground every winter. Haupt was placed in the catalog of the American Pomological Society in 1909. Plants vigorous, trailing, with small, dark green foliage.

Humboldt. 1. *Rural N. Y.* 55:547. 1896. 2. *Am. Pom. Soc. Rpt.* 159. 1920.

Originated by S. L. Watkins, Pleasant Valley, California, who introduced it in 1916; said to be a seedling of *Rubus ursinus*. Plants trailing, very vigorous and productive, canes sometimes reaching a length of twenty feet; fruit very large, thick, attractive jet black with a spicy wild flavor; early.

Humbolt. 1. *Am. Pom. Soc. Rpt.* 286. 1921.

Originated by Luther Burbank, Santa Rosa, California. Supposed to be a cross between an improved California dewberry and Cuthbert. Plants very vigorous; fruit very large, dark crimson, covered with a silvery sheen, very acid with both raspberry and blackberry flavor, excellent for canning; ripens in June in California.

Laxtonberry. 1. *Garden* 80:228. 1916. 2. Bunyard *Cat.* 18. 1921. 3. Hedrick *Cyc. Hardy Fr.* 290. 1922.

Laxton. 3. *U. S. D. A. Farmers' Bul.* 998:23. 1918.

As its history shows, Laxtonberry originated in England where it has attained some prominence as a cultivated fruit. It is little grown in eastern North America, but finds some favor on the Pacific Slope. This interesting hybrid, having much the habit of growth of the loganberry, is listed with dewberries, for, as usually seems to be the case in the hybrids in which the red raspberry is one parent, the raspberry characters are almost wholly submerged. The berry is much like that of the loganberry in color and flavor, but separates

from the receptacle somewhat like a raspberry. The blossoms are not wholly self-fertile and the variety must be planted in proximity to the loganberry or a red raspberry, preferably the former. Laxtonberry is a cross between the loganberry and the Superlative red raspberry, and was originated by Laxton Brothers of England. The berry is much like the loganberry in color and flavor, but separates from the receptacle somewhat like a raspberry.

Canes roundish, glabrous, eglandular; thorns weak, straight, small, numerous, yellowish brown; leaflets 3–5, broad, medium in size, dull green, with white tomentose beneath, the margins crenate in single and double series; lower and lateral leaves sessile; petiole medium in length, thick, pubescent, prickly. Flowers not wholly self-fertile, in compact, leafy clusters medium in length.

Loganberry. 1. *Rural N. Y.* 55:135, 495. 1896. 2. *Ore. Sta. Bul.* 105:21. 1909. 3. Card *Bush-Fr.* 222, Pl. VI. 1917. 4. Hedrick *Cyc. Hardy Fr.* 290, fig. 255. 1922.

Logan Blackberry. 5. *U. S. D. A. Farmers' Bul.* 998:1. 1918.

Plants and fruits of the loganberry are discussed in two previous chapters to which readers seeking full information on this interesting fruit should turn. (See pages 59 and 199.) It suffices here to give a description of the plant as it grows on the grounds of this Station.

Plants very vigorous, a stronger grower than the ordinary dewberry, semi-trailing, tender in the East, hardy in the West where the temperature does not reach zero, very productive under favorable conditions, healthy; canes medium to slender, pubescent, cylindrical, brownish red mingled with green, eglandular; prickles slender, very numerous, reddish; leaflets 3–5, broad-oval or heart-shaped resembling the raspberry, very thick, large, dull, rugose, pubescent, with finely serrate margins; petiole medium in length, rather thick. Flowers mid-season, white, in open, leafy clusters; petals roundish; pedicels long, thick, tomentose, prickly, eglandular; calyx very prickly, eglandular; calyx-lobes tomentose, bristly without, eglandular. Fruit early, clings rather tenaciously, ripens slowly; long-cylindrical-conic or ovate, large, glossy red; drupelets numerous, rather large, pubescent; core hard; flesh juicy, pleasantly sprightly at full maturity, otherwise rather acid, with a peculiar raspberry flavor, which is improved by cooking, firm enough to ship well; good in quality.

Lucretia. 1. *Rural N. Y.* 44:707, fig. 464. 1885. 2. *Cornell Sta. Bul.* 34:287, fig. 6. 1891. 3. Bailey *Ev. Nat. Fruits* 332, figs. 71 & 72. 1898.

As we have seen in a previous chapter, Lucretia was one of the first cultivated dewberries to make its way into popular favor. Perhaps it is not too much to say that it is still the best known and most widely grown of all dewberries, if the loganberry, here included with dewberries, be excepted. At the same time it is probable that it is past its prime in popular favor and that it is being superseded by other sorts. This dewberry came to its high estate in the small-fruit culture of the country because the plants grew splendidly on a great diversity of soils and in a range of latitudes from the coldest to the warmest in which this fruit can be grown. The plants have the faults of being susceptible to anthracnose, and of producing many double blossoms which are sterile. The fruits are large, jet black, very handsome, not of the highest quality, and are often variable in size. To

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have them at their best they must be permitted to become fully mature before picking. Unfortunately several other varieties are commonly substituted by nurserymen for Lucretia, so that many growers who think they have it do not have it. The American Pomological Society added Lucretia to its list of recommended fruits in 1889. (For a fuller discussion of Lucretia, see page 197.)

Plants vigorous, trailing, require protection in the winter, almost immune to orange-rust, susceptible to anthracnose and double-blossom especially in the South, very productive; canes slender, cylindrical, long, numerous, dull green mingled with brown, pubescent, eglandular; prickles small, slender, numerous, greenish; leaflets 3–5, sometimes 7, small, oval, dull, attractive, dark green, smooth, pubescent, with dentate margins; petiole slender. Flowers early, self-fertile, large, few, in short, open, leafy, prickly clusters; petals white, oblong; pedicels very long, slender, eglandular; calyx eglandular. Fruit early; large although variable in size, long-cylindrical, tapering slightly, jet black; drupelets large, round, with good coherence; core soft; flesh juicy, firm, pleasantly sprightly when fully ripe, otherwise rather tart, rich; quality very good.

Lucretia Sister. **1.** Bailey *Ev. Nat. Fruits* 344. 1898.

Introduced by J. B. Tweedway, Brandt, Ohio, about 1886; apparently without value as compared with Lucretia.

Mahdi. **1.** *Rural N. Y.* **59**:626. 1900. **2.** Veitch & Sons *Cat.* 64, fig. 1902. **3.** Bunyard-Thomas *Fr. Gard.* 31. 1904. **4.** *U. S. D. A. Farmers' Bul.* **998**:23. 1918. **5.** Hedrick *Cyc. Hardy Fr.* 291, fig. 257. 1922.

This hybrid between a blackberry and a raspberry proves to be little more than a curiosity in most situations. Both plants and fruits are interesting to a student of brambles, and therefore a full description of them is given. The plants might well pass in even commercial plantations for they are vigorous, healthy and very productive, but the fruits are far below the mark for any purpose. They are exceedingly variable in size and shape; do not detach readily from the torus; the drupelets are large and coarse; and the quality is none too good. It is interesting to note that the variety is best propagated by tips, partaking of its raspberry parent in this respect. Mahdi is presumably a cross between the Belle de Fontenay raspberry and the common blackberry. Some pomologists have thought it to be a cross between loganberry and a raspberry.

Plants very vigorous, semi-prostrate, drooping or trailing, not very hardy, productive, healthy; propagated by tips; canes very prickly, rather numerous, unusually stocky, very long, cylindrical, brown mingled with gray becoming dark red, dull, glabrous; prickles very numerous, tinged red; leaflets 3, oval, luxuriant dark green, glossy, slightly rugose and pubescent, with serrate margins; petiole short. Flowers late, season unusually long, small, light pink, few to medium, in short, rather dense, leafy, prickly clusters often springing from the axis of the leaves, the larger ones terminal; pedicels short. Fruit very late, season very long; berries thickly clustered towards the extremities of the branches and branchlets in all stages of development from blossoms to mature fruit, quite variable in size and shape, usually roundish or roundish conic, dark, dull, purple, cling tenaciously to the torus; drupelets large, coarse, elliptical to roundish, with weak coherence making the berries crumble; flesh moderately juicy, tender, pleasantly sprightly; quality fair to good.

Manatee. 1. *Cornell Sta. Bul.* 34:309. 1891. 2. *Rural N. Y.* 60:550. 1901.

Introduced in 1889 by Reasoner Brothers, Manatee, Florida. Valuable in Florida but unproductive elsewhere. Plants very tender to cold, very unproductive; canes very numerous, reddish with numerous small, reddish prickles; fruit very large; drupelets very large, moderately firm, rich, sweet; good.

Mayes. 1. Bailey *Ev. Nat. Fruits* 344. 1898. 2. *Am. Pom. Soc. Cat.* 23. 1899. 3. Card *Bush-Fr.* 225. 1917.

Austin Improved. 4. *Rural N. Y.* 55:413, figs. 135 & 137. 1896.

Austin. 5. *Am. Pom. Soc. Cat.* 16. 1897.

Of little account in New York and the East, Mayes is considered one of the best dewberries in sections of the Middle West, and especially in northern Texas where it is largely grown in commercial plantations. Earliness, productiveness, great vigor of plant, and remarkable powers to resist dry, hot weather seem to be the characters that commend Mayes. It is too tender to cold for northern regions. The berries are comparatively small, rather soft to ship well, but are handsome and of very good quality. The plants are subject to anthracnose and bear a good many double blossoms; they are propagated either by tips or from root cuttings. Mayes was found growing wild by John Mayes, Pilot Point, Texas, about 1880. It is supposed to be a hybrid between the wild dewberry and the common blackberry. The variety was cultivated by Mr. Mayes and known locally as Mayes or Mayes Hybrid. Later it was sent out by J. W. Austin, of Pilot Point, as Austin Improved. The American Pomological Society listed the variety as Austin in its fruit catalog in 1897, but two years later changed the name to Mayes.

Plants vigorous, trailing, tender to cold, sometimes productive but variable in yield; subject to anthracnose and double-blossom; propagated by root-cuttings, also by tips; canes long, slender, numerous, greenish, cylindrical, glossy, eglandular or with but very few almost sessile, small glands, nearly glabrous; prickles slender, very numerous, light red at the base; leaflets 3–5, sometimes 7, variable in size, oval, dull dark green, rather smooth, pubescent, with coarsely dentate margins; petiole short, slender. Flowers self-fertile, midseason, large, in the axils of the leaves and terminal, in long, very loose, leafy, prickly clusters; petals white, oblong; pedicels very long, thick, with but few small glands. Fruit very early, can not be shipped far, holds up well in size; berries few in a cluster, either singly or sometimes in twos and threes, roundish to long-conic, thick, broad at the base, jet black; calyx large, not reflexed; drupelets very large, round, rather few; core hard at first, medium to soft when fully ripe; flesh very juicy, firm until dead ripe, very sprightly, distinctly acid even when fully ripe; quality good to very good.

Miner.

Miner's Seedling. 1. *Rural N. Y.* 13:317. 1862.

Raised from seed of a wild dewberry by a Mr. Miner, Honeoye Falls, New York. Plants trailing; fruit smaller than that of Lawton and of same shape, sweet; excellent. (See page 194 for a longer discussion of this variety.)

Monroe. 1. *Austin Nur. Cat.* 19. 1920.

Introduced in 1920 by the Austin Nursery Company, Austin, Texas. Received by them about 1900 from a Florida nursery. It is said to thrive on sandy soils in the South,

MAYES

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but is unproductive on black land. Plants very vigorous; fruit very large, long, of southern dewberry type.

Mortgage Lifter. 1. *Am. Pom. Soc. Rpt.* 160. 1920.

Offered by the Aggeler & Musser Seed Co., Los Angeles, California. Said to be very productive and extremely early.

Myer. 1. *Am. Pom. Soc. Cat.* 25. 1909.

Listed in the catalog of the American Pomological Society for 1909 as a promising sort for the coast section of Oregon, Washington, and British Columbia.

Ness. 1. *Jour. Hered.* 12:449. 1921.

A. & M. Berry. 2. *Texas Sta. Rpt.* 9. 1920.

Under this name H. Ness, horticulturist at the Texas Station, sent out in 1920 nine different selections of third generation seedlings of a cross between the Louisiana dewberry, *Rubus rubrisetus*, and Brilliant red raspberry, made by him at the Texas Station in 1913. The differences between these strains are not great.

Plants vigorous, resembling the raspberry, at first prostrate, but later becoming bushy and more erect; canes large, round; foliage thick; fruit separates from the pedicel with difficulty, large, roundish, dark red; drupelets large, adhering to the core; flavor mildly acid, resembling the raspberry; season the first of May until August in Texas.

Newberry. 1. *Garden* 80:207. 1916.

Introduced by Whitelegg & Page, Chislehurst, England. Said to be a cross of loganberry and Superlative red raspberry. It is very similar to the loganberry, differing in the fruit being sweeter, with more of a raspberry flavor and less inclined to mold in damp weather.

Northey. 1. *Am. Pom. Soc. Rpt.* 160. 1920.

A selected type of the wild dewberry of northern Florida introduced by S. L. Watkins, Pleasant Valley, California. Succeeds in the Southern and Pacific States. Plants productive; flowers perfect; fruit very early.

Noten. 1. *Am. Pom. Soc. Rpt.* 286. 1921.

Found in the wild about 1896 by Pierson Noten in Hornsby's Bend near Austin, Texas. Not as large as Rogers.

Oregon Evergreen. 1. *Ga. Sta. Bul.* 33:517. 1896.

Parsley-Leaved. 2. *Mag. Hort.* 20:81. 1854.

Cut-Leaved. 3. Fuller *Sm. Fr. Cult.* 172. 1867.

Evergreen. 4. *Rural N. Y.* 44:515, 592, 629. 1885. 5. *N. Y. Sta. Bul.* 63:666. 1893.

Oregon Everbearing. 6. *Rural N. Y.* 50:670. 1891. 7. Bailey *Ev. Nat. Fruits* 360. 1898.

A discussion of this sort on pages 83 and 189 in previous chapters suffices to indicate its status for the blackberry regions of the country and to show its interesting characters to growers and students of bramble fruits. Its history is also set forth on the pages just given. The following description is taken from plants as they grow on the grounds of the New York Agricultural Experiment Station.

Plants extremely vigorous, trailing, tender to cold, variable in yield, sometimes very productive, almost immune to anthracnose and orange-rust; propagated from tips and from root-cuttings; canes extremely prickly, perennial, numerous, medium to slender, grooved, dull reddish brown, slightly pubescent and glandular; prickles large, long, thick, very stout, strongly hooked, very numerous, light brown at the base; foliage ornamental; leaflets evergreen, cut-leaved, small, broad-ovate, dissected into several linear, sharp-toothed divisions; the younger leaves very glossy, rugose, glabrous, thinly pubescent, puberulous beneath, with deeply lobed, coarsely serrate margins; petiole short, very prickly. Flowers unusually late, blooming season long, medium to numerous, in open, leafy, prickly clusters; petals pale pink or rose colored, oblong; pedicels short; calyx-segments prickly. Fruit unusually late, ripening over a long season, said to ship and keep well; variable in size, irregularly roundish, glossy black, adhering strongly; drupelets very large, with strong coherence; core hard; flesh juicy, firm, sprightly or sour; quality poor.

Phenomenal. 1. *Ore. Bd. Hort. Rpt.* 109. 1909–10. 2. *U. S. D. A. Farmers' Bul.* 998: 24. 1918. 3. Hedrick *Cyc. Hardy Fr.* 292. 1922.

This variety, supposed to be a cross between the western dewberry and the Cuthbert red raspberry, is so similar to the loganberry that it is usually classed with it. It does not thrive on the grounds of this Station, but its champions on the Pacific Slope say that the fruits are brighter, sweeter, richer, and have a more distinct raspberry flavor than those of the loganberry. Both Phenomenal and the loganberry are subject to a disease which dwarfs the plants and cuts short their life to but three or four profitable seasons. Phenomenal seems to be more subject to this dwarfing disease than the loganberry. The berries, also, often grow double, which disfigures them for the market. In the plants, the canes of Phenomenal are a little hardier; the blossoms open a few days later; and the berries are a little larger. There are those, however, who say that neither the differences noted in fruits or plants are inherent but come for most part from environment or care. Phenomenal is of small importance in regions where the loganberry is well established, except about Los Angeles where it is grown by some in preference to the older sort. It does not succeed in New York. This variety was introduced by Luther Burbank, Santa Rosa, California, nearly twenty years ago. In 1909 the American Pomological Society added the variety to its fruit-catalog list.

Plants very vigorous, trailing, tender to cold, variable in yield, not always healthy; canes stocky to medium, cylindrical, purplish green mingled with brown, dull, very glaucous, pubescent, eglandular; prickles medium in size and length, slender, very numerous, purplish red, leaflets 3–5, broad-oval, dark green, rugose, pubescent, characteristically thick, with dentate margins; petiole short, thick. Flowers early, in short, loose, leafless clusters; petals white, oblong; pedicels medium in length and thickness; calyx eglandular, elongated. Fruit early; large, often double, long-conic, broad at the base, dull red, adheres strongly; drupelets medium in size and number, with strong coherence; core soft; flesh juicy, tender, mildly subacid; quality fair.

Premo. 1. *N. J. Hort. Soc. Rpt.* 145. 1906. 2. *U. S. D. A. Farmers' Bul.* 728:17. 1916. 3. Card *Bush-Fr.* 227. 1917. 4. Hedrick *Cyc. Hardy Fr.* 292. 1922.

Premo differs but little from its supposed parent, Lucretia, of which it is thought to

OREGON EVERGREEN

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be either a seedling or a sport. The plants are very similar to those of Lucretia, but ripen their crop a week or ten days earlier, are not so productive, and bear more imperfect flowers. The fruits probably average a little smaller than those of Lucretia. Most growers think that the plants are not as productive as those of Lucretia. The variety is not of much importance in New York and the North, but seems to be a favorite early dewberry in some parts of the South, notably in North Carolina. But little seems to be known of the history of this variety but it has been under cultivation since 1905. It is supposed to have been found in a patch of Lucretia.

Plants medium in vigor, trailing, tender to cold, variable in yield, usually healthy; canes numerous, slender, cylindrical, dull green, pubescent; prickles slender, short, few, reddish at the base; leaflets 3–5, variable in size, broad-oval, thick, dark green, rugose, pubescent, with serrate margins; petiole thick, medium in length, deeply channeled, with but few prickles. Flowers midseason, often self-sterile, large, white, few, in short, open, leafy clusters; pedicels long, heavily pubescent, with but few prickles; calyx large; pistils irregular, sometimes protruding from the flower buds before the petals open. Fruit very early; large, irregularly oblong-oval, attractive black; drupelets large, round, with good coherence; core soft; flesh juicy, moderately firm and sprightly; quality good to very good.

Primus. 1. *U. S. D. A. Pom. Rpt.* 264, Pl. 8. 1892. 2. *U. S. D. A. Farmers' Bul.* 998: 24. 1918.

Primus was originated by Luther Burbank, Santa Rosa, California, in 1889, as a cross between the western dewberry, *Rubus vitifolius*, and *Rubus crataegifolius;* introduced by Burbank in 1893. Plant a strong grower, productive, partially trailing, thickly covered with short, blunt prickles, propagated by tips; fruit large, long, black, sweet, resembling a raspberry in flavor, adhering to the core; ripens earlier than the loganberry.

Rogers. 1. *Am. Pom. Soc. Rpt.* 286. 1921.

Discovered near Alvin, Texas, by a Mr. Rogers; introduced about 1893 by C. Falkner, Waco, Texas. Fruit large, a good shipper; excellent in quality; early.

San Jacinto. 1. *Austin Nur. Cat.* 16. 1907.

Found by F. T. Ramsey, Austin, Texas, and introduced by F. T. Ramsey & Son about 1896. At this Station it is tender to cold and unproductive. Plants trailing, moderately vigorous, not hardy, rather unproductive; canes slender, densely covered with fine reddish spines and glandular hairs; foliage very small; fruit small; early.

Skagit Chief. 1. *Cornell Sta. Bul.* 34:310. 1891.

Introduced in Avon, Washington, in 1891. Flowers pistillate, blooming too early for pollination by eastern dewberries.

Sorsby. 1. *Rural N. Y.* 74:71. 1915. 2. Hedrick *Cyc. Hardy Fr.* 289. 1922. *Sorsby May.* 3. Munson *Cat.* 10. 1901.

Introduced in 1901 by T. V. Munson & Son, Denison, Texas. It is said to be a blackberry-dewberry hybrid, the plants resembling those of McDonald. It requires winter protection in this latitude, and being self-sterile, much of the fruit is poorly developed.

Plants vigorous, trailing, becoming upright after the first season, tender, productive where hardy; canes slender; foliage small, dark green; fruit below medium size, irregular oval; drupelets of medium size, many failing to develop, moderately juicy, seedy, subacid; fair.

Tribble. 1. *Am. Pom. Soc. Rpt.* 160. 1920.

Originated near Elk Grove, California, and introduced by Claude Tribble of that place. Similar to the loganberry, but earlier.

Washington Climbing. 1. Bailey *Ev. Nat. Fruits* 354. 1898.

Introduced in 1892 by Samuel Wilson, Mechanicsville, Pennsylvania.

Wilson White. 1. *Cornell Sta. Bul.* **34**:310. 1891. 2. *Ga. Sta. Bul.* **33**:521. 1896.

Introduced in 1890 by Samuel Wilson, Mechanicsville, Pennsylvania, from stock from Colorado County, Texas. As grown at the Georgia Agricultural Experiment Station the plants form a dense, matted growth of tangled evergreen canes and leaves with numerous laterals, very unproductive; prickles numerous, variable in size; fruit of medium size, oval; drupelets large, white, sunscald badly, briskly subacid.

Windom. 1. *Minn. Hort. Soc. Rpt.* 137. 1887.

Cook's Hardy. 2. *Col. O. Hort. Soc. Rpt.* 70. 1887.

Introduced in 1887 by the Minnesota Horticultural Society. Originated on the farm of Dewain Cook, Windom, Minnesota. It had previously been brought to Minnesota by J. Q. Pickett from Iowa who had cultivated the variety for eighteen years. Plants vigorous, trailing, hardy, fairly productive; propagates by tips and suckers; canes nearly thornless; fruit slightly larger than Snyder but not as good in quality; sunscalds easily; early.

Young. 1. *Am. Fr. Gr. Mag.* **45**: No. 1, 9. 1925.

A cross between Phenomenal and Mayes raised about 1905 by B. M. Young, Morgan City, Louisiana. J. F. Jones, Jeanerette, Louisiana, sent plants to the United States Department of Agriculture. These fruited in 1924 at Bell, Maryland, attracting favorable attention, whereupon they were named Young and plants were distributed in 1924.

Plants vigorous, trailing, probably not hardy in New York, productive, propagating by tips; canes stouter and longer than Lucretia, red; prickles numerous, variable in size, averaging small, purplish; fruit larger than Lucretia, ovoid-oblong, truncate; drupelets large, glossy, dark wine color, very juicy, firmer than the loganberry, subacid, rich; excellent; core soft; season of Lucretia but longer.

PART II

THE BUSH FRUITS

CHAPTER VIII

THE EVOLUTION OF CULTIVATED CURRANTS

The currant was not grown in the gardens of the ancients, and no plant which answered to its description is to be found in agricultural literature until late in the Middle Ages. This is not strange, for, as has been set forth in the discussion of species, all species from which cultivated currants come are inhabitants of northern climates where agriculture was late in getting a start. The early Greek and Roman gardeners could have imported seeds or plants from northern regions, or from mountain ranges where currants grow in the south, and possibly they did, but the currant is a cool climate plant and will not prosper on the shores of the Mediterranean. Moreover, the plants and fruits are too small, and the taste of the currants too tart to attract cultivators north or south in the early stages of agriculture, when fruits were little appreciated and the more luscious tree fruits were to be had.

The name *currant* is derived from *Corinth*, an ancient city in Greece, and was first used to designate a small grape exported from the region about Corinth as a dried fruit. The name is still used for this grape and the dried currant of commerce is a grape, the trade name of which is now *Zante currant*. The similarity of the fruits of the cultivated species of Ribes to this grape accounts for the name, which in early English texts had several forms, as *corinthes*, *corans*, *currans*, *bastarde corinthes*, and so on to the present form. The name most commonly used in Early English is *corans*, the first use of which is attributed to Lord Bacon, 1561–1626. The Italians have ever known this fruit as *Uvetta* (little grape).

Currants are roughly divided by pomologists in three groups, in accordance with the colors of the fruit,— red, white, and black sorts. Red and white currants belong to the same species, the white sorts being horticultural varieties of the wild red species, although white forms are sometimes found in feral plants. White currants differ from the red sorts only in color of fruit, all other characters of plant and product being the same. Pink, salmon-colored, and sorts with berries alternately striped with red

and white, are known. The black currant belongs to a distinct species and will be so treated.

RED AND WHITE CURRANTS

The currant was probably first cultivated as a common garden plant in Holland, Denmark, and the coastal plains about the Baltic. Certainly it has long been and still is a favorite fruit in these regions. Several names of old varieties of red currants bespeak a Dutch origin, and an old French name, still current in parts of France, *groseillier d'outre mer* (currant from over the sea) may mean that the plant was brought to France from beyond the Baltic, the northern sea. Species of currants from which cultivated currants have been derived, it is true, grow wild in northern France, Germany, and Austria, but neither wild nor cultivated do the fruits attain the size and quality of more northern plants, and in competition with the tree fruits of these countries would scarcely attract attention.

The red currant first appears in English agricultural literature at the close of the sixteenth century. Gerarde in his *Herball* or *General Historie of Plants*, 1597, seems to be the earliest English writer to notice the currant as a garden plant but calls them gooseberries and not currants. He[1] says, writing of gooseberries: "We have also in our London gardens another sort altogether without prickes, whose fruit is verie small, lesser by much than the common kinde, but of a perfect red colour, wherein it differeth from the rest of his kinde." Surely this plant is a currant and not a gooseberry. Thomas Tusser in his several editions of *Five Hundred Pointes of Good Husbandrie*, 1557–1580, in which it is supposed that every food plant then cultivated in England is listed, does not include the currant.

Curiously enough the next reference to the currant in English agricultural records has to do with sending plants to America. In a memorandum of the Massachusetts Company, dated March 16, 1629, the interests of the colony in the New World are thus prepared for:[2] "To provide to send for New England, Vyne Planters, Stones of all sorts of fruites, as peaches, plums, filberts, cherries, pear, aple, quince kernells, pomegranats, also wheate, rye, barley, oates, woad, saffron, liquorice seed, and madder rootes, potatoes, hop rootes, currant plants." It appears from future accounts that these seeds and plants having been sent over, most of them grew, and we may assume that the currant, as easy to propagate as any, was thus introduced in America.

[1] Phillips, Henry *Pom. Brit.* 137. 1820.

[2] *Mass. Rec.* 1:24.

Rea, in his justly esteemed *Flora, Ceres & Pomona*, 1665, is the next English writer after Parkinson to give attention to the currant. He devotes a chapter to this fruit under its generic name *Ribes*. In it three items of interest are to be noted: The beginning of the use of the word "currans;" early mention of the Red Dutch and White Dutch varieties; and the use of division rather than of cuttings in propagation. The chapter follows:[1]

"*Corinthes*, or *Currans*, as they are vulgarly called, are Plants well known unto all; of these there are five several sorts, which differ chiefly (as the *Goosberries*) in the Berries.

"*The small black Curran* is not worth the Planting.

"*The small red Curran* is of no better esteem.

"*The great red Curran* is a plentiful bearer, the Berries twice as big as those of the former, of a bright shining red colour, and good (though something sharp) taste.

"*The greatest dark red Dutch Curran* differs from the last, in that the Berries are bigger, of a more blackish colour, and sweeter taste.

"*The white Curran* is like the great red, onely the Berries are something lesser, white, transparent, and well-tasted.

"They are as easily increased as *Goosberries* by Suckers, parting the roots or laying the branches; these may be budded one upon another, and so several sorts grow from one Stock, as is said of the *Goosberries*."

Batty Langley in his *Pomona*, 1729, gives a short chapter to the discussion of gooseberries and currants, the title of which is: *Of Gooseberries and Currants, or Corinths, so called from Corinthia whence they first came.* Thus Langley adds to the confusion of the currant and Corinth raisin. Of more importance, however, is the fact that this is the first spelling of currant as the word is now spelled — at least in the well-known pomologies of the eighteenth century. Langley names but two varieties, the Red and White Dutch. In his day currants were still propagated by division or by layering.

The next pomology of much worth was that of Mawe, whose dictionary of gardening and botany was published in 1778, fifty years after Langley's *Pomona* appeared. Mawe names ten currants but four of these are either ornamentals or curiosities grown for their foliage. The six edible varieties are: Common Small Red Currant, Long-bunched Red Currant, Champaigne Pale-red Currant, Common Small White Currant, Large Red Dutch Currant, and Large White Dutch Currant. These names indicate that some of the varieties were similar to others, and then as now gardeners complained

[1] Rea, John *Flora* 3:231. 1665.

that they could not buy sorts true to name. Currants were at this time, probably for some years before, propagated from cuttings, although suckers and layers are still recommended.

Phillips in his *Pomarium Britannicum*, 1820, may be quoted to show the purposes for which currants were chiefly grown a hundred years ago as compared with the present. They were less esteemed then to eat out of hand than for medicinal and beverage purposes. Thus Phillips[1] says:

"At the dessert, they are greatly esteemed, being found cooling and grateful to the stomach; and they are as much admired for their transparent beauty, as for their medicinal qualities, being moderately refrigerant, antiseptic, attenuant, and aperient. They may be used with advantage to allay thirst in most febrile complaints, to lessen an increased secretion of bile, and to correct a putrid and scorbutic state of the fluids, especially in sanguine temperaments: but in constitutions of a contrary kind, they are apt to occasion flatulency and indigestion. Brookes says, they strengthen the stomach, excite appetite, and are good against vomiting." And again:[2]

" The wine made from the white currants, if rich of fruit, so as to require little sugar, is, when kept to a proper age, of a similar flavour to the Grave and Rhenish wines; and I have known it preferred as a summer table wine. Even in London this agreeable beverage may be made at less expence than moderate cider can be bought for. Diluted in water, this wine is an excellent drink in the hot season, particularly to those of feverish habits. It makes an excellent shrub; and the juice is a pleasant acid in punch, which, about thirty years back, was a favourite beverage in the coffee-houses in Paris."

Phillips names the red and white currant as the kinds cultivated in 1820, but says " the salmon color, or champaigne, is cultivated for variety." Other varieties were to be found, however, as we shall see in the next paragraphs.

In the *Catalogue of Fruits cultivated in the Garden of the Horticultural Society of London*, 1826, 35 species and varieties of currants are named, but judging from the names not more than 20 of these are inhabitants of fruit gardens, and some of these are of doubtful standing, as the catalog makes the following statement, true now as then:[3]

" There is perhaps no class of fruits in which so much ignorance exists of the merits and differences of the varieties, as the Red and White Currants of the Gardens. It is impossible to obtain the different kinds with certainty from the Nurseries, although there is no doubt that their respec-

[1] Phillips, Henry *Pom. Brit.* 138. 1820.

[2] *Ibid.* 139.

[3] *Lond. Hort. Soc. Cat.* 185. 1826.

tive qualities are of much importance." The sorts are:[1] Common Red, Large Red, Large Bunched Red, Long Bunched Red, Morgan's Red, Red Dutch, Red Dutch — Large, Red Dutch — New, Red Grape, Wilmot's Pale Red, Champagne, Common White, Jeeves's White, Morgan's White, Pearl White, Small White, Speary's White, White Crystal, White Dutch, White Dutch — New, White Leghorn.

One suspects from these names that the list is somewhat padded and that not half of the number are distinct sorts. Hogg in 1866 includes all of these names under six varieties. In the twenty names, only two are familiar to currant growers today,— Red and White Dutch.

Taking another casual dip in British pomology at a still later date we find that Hogg, 1866, describes nine varieties of red currants, six of which are put on a select list. At least three of the six recommended sorts are more than a hundred years old and two, Red and White Dutch, go back to the very beginning of currant culture in England and on the continent. Up until this time those who had sought to improve plants had given the currant scant attention, although three of Hogg's nine varieties were originated by Thomas Andrew Knight, England's premier breeder of fruits.

The history of the currant on the continent of Europe parallels that of this fruit in England. There are, however, earlier references on the continent than those given from English books. E. L. Sturtevant, a former director of this Station, and a careful student of early agricultural literature, has left voluminous notes on the history of cultivated esculents. The paragraph that follows is taken from Sturtevant's notes (Western New York Horticultural Society Proceedings, page 56, 1887) and possibly presents as good an account of the early cultivation of this fruit as can be found.

" By the herbalists and early writers on horticulture, the first mention of the currant that I find, is by Ruellius [2] in 1536, a French author, who praises it as a border plant, and its fruit as an appetizer. In 1539, Ammonius [3] says " we cherish it in our gardens," but adds nothing of further interest in this connection. Fuchsius [4] in 1542 gives a figure which may be called a poor specimen of the Common Red, and which resembles certain seedlings which are now frequently obtained. He notes its occurrence in gardens *passim*. Tragus,[5] who wrote in Germany in 1552, gives a figure of

[1] *Ibid.* 186.

[2] Ruellius de natura stirp, 1536, 283.

[3] Ammonius. med. hort. 1539, 310.

[4] Fuchs. hist. stirp. 1542, 662.

[5] Trag. de stirp. 1552, 994.

the garden currant, which may well be the Common Red. In 1558, Matthiolus [1] refers to it as common in gardens, and it is also spoken of by Mizaldus [2] in 1560. Pinaeus,[3] 1561, gives a figure which may be that of a Common Red, while Lobel [4] in 1576 and 1591 offers figures which are to be called Common Red, but which are of a far better appearance than those heretofore figured, and mentions also a sweet kind. Lytes translation of Dodoeus, edition of 1586, speaks of the currant in England, but translates one name as 'beyond the sea' gooseberry. This same year 1586, Camerarius [5] figures the Common Red, as does Dalechamp [6] in 1587. The next year, Camerarius [7] gives directions for sowing the seed of the wild plant in gardens, and says these seedlings quickly come to fruit. We have hence the first clue as to how new varieties might originate, if this recommendation was generally followed. Camerarius also refers to a larger fruited currant than common, that was growing in the gardens of the Archduke of Austria, and this is the first indication I can note of improvement in varieties, such as might well be anticipated from the practice of growing seedlings. This '*Ribes baccis rubris majoribus*' may perhaps be considered as the Red Dutch variety, or at least its prototype. In 1597, Gerarde,[8] as before stated, scarcely recognized the currant as being in general culture in England, but the next year, or 1598, brings us to what may well be called a picture of the Red Dutch variety, given in Bauhin's edition of Matthiolus, as also a mention of a white fruited variety, and another described as 'sweet.'"

Sturtevant's history of the currant begins with Ruellius, 1536, a French author. De Candolle, without question the best authority on edible plants who has yet written, also gives Ruellius credit of being the first writer on plants to mention the currant as cultivated. But Bunyard, 1917 (Journal of the Royal Horticultural Society pages 260–270, 1917) who reviews the botanical, garden, and historical literature of this fruit, tells us that the currant is mentioned in a German MS. of the early fifteenth century and that there is a very good discussion of a red currant in the *Mainz Herbarius* of 1484. It does not follow that the plant was as yet domesticated, but since certain medical qualities had been ascribed to it, it is probable that it was grown in the herb garden at this time if not in the kitchen garden.

[1] Matth. comment. 1558, 101.

[2] Mizaldus, secretorum, 1560, 105.

[3] Pinaeus, hist. 1561, 67.

[4] Lobel, obs. 1576, 615; i.e. 1591, 2,202.

[5] Camerarius, epit. 1586, 88.

[6] Hist. Gen. usually referred to as Lugd. 1587, 1, 131.

[7] Camerarius. hort. 1588, 141.

[8] Gerarde. herbai. 1597, 1143.

Bunyard, in his admirable history of the currant in the reference cited, also gives dates and details as to the introduction of the several species of currants but into this we cannot go other than in the references accompanying the botanical descriptions in the chapter on *Systematic Botany of the Currant.*

There is little of interest or of profit to the pomologist in the history of the currant in America. The earliest English settlers in Massachusetts, as we have seen, brought this fruit to the new country. Probably the sorts brought were the Red and White Dutch, and the fact that after three hundred years we still grow these varieties is significant,— there have been few attempts to improve the currant in America. The list of American varieties is now larger than that of Europe, not because of the efforts of plant breeders, but because the currant is grown over a vastly greater territory here than in Europe, and new varieties have originated by chance in the varied environments.

The Prince Nurseries, Flushing, Long Island, in 1770 offered to gardeners three varieties, Large Red, Large White, and Large Black. In 1790 this nursery was selling the same sorts. McMahon, in his *American Gardener's Calendar*, 1806, names the Common Red, Large Red, Pale White Dutch, Large White, and White Crystal, but without description so that we cannot know what they were. His directions for pruning, propagating, and culture would answer excellently for currant culture in the modern industry. McMahon tells his readers that currants may be " raised from seed and improved sorts obtained thereby." Would that we could take the date of this advice as the beginning of currant breeding in America, but intelligent sowing of seed with the selection of seedlings seems not to have been begun in the case of the currant in this country for another half century.

Prince, the next pomological writer to mention currants, in his *Treatise on Horticulture*, 1828, names seven kinds, all European, and although there are no descriptions, the seven names, following English descriptions, stand for but four distinct varieties. Downing in *The Fruits and Fruit Trees of America*, 1845, describes eight varieties, not counting the Common Red and the Common White, which he says " are totally undeserving a place in the garden, when those very superior sorts, the White and Red Dutch, can be obtained." White Dutch at this time was grown under five other names and Red Dutch was listed under eight besides its true one. Downing's book was revised in 1857 when twenty-five varieties were thought worthy brief descriptions — all from Europe.

The first American student of varieties of currants to publish was

Andrew S. Fuller, in whose *The Small Fruit Culturist*, 1867, we find an admirable discussion, with very good descriptions, of the currants grown in America. Twenty-eight varieties are listed with some forty-odd synonyms. There is, as in all lists of currants from the first to the last, much confusion in the nomenclature, and Fuller now makes an honest effort to set currant growers straight as to correct names. He describes two sorts of American origin, Buist's Long-bunched Red, and Dana's White. Neither are now, or ever were, of much value. Fuller relates an experience in obtaining Dana's White that many collectors of currants could duplicate with other varieties. He says that he obtained, from what he supposed to be reliable sources, five distinct varieties under this name.

Perhaps the next noteworthy contribution to our knowledge of American-grown currants is found in a publication from this Station. As early as 1882, the first year of the Station's existence, the beginning of a collection of currants was made by the planting of twelve kinds. By 1890 this number had increased to twenty-odd varieties, all but two of which were old European sorts. Now, however, a rapid development in currant improvement began to take place. Between 1890 and 1895, fifteen currants, all of American origin, were added to the collection. True, some of these did not come into prominence but others, as Wilder, North Star, Red Cross, Eclipse, Ruby, and Pomona, made their appearance in this period as sorts worthy widespread cultivation. The first account of these studies of the currant at the New York Agricultural Experiment Station appeared in Bulletin 95, 1895, since which, until the present work, the currant and its varieties have had but occasional mention.

The next survey of the varieties of currants grown in the United States appears in Card's *Bush-Fruits*, 1898. Card lists 58 varieties of red and white currants with histories and descriptions as full as the data obtainable permitted. Of these, 25 probably originated in America. Not all of them, by any means, are under cultivation. Some of the names are synonyms. A good many of the varieties, as Card says, have only received mention or have been little known in the United States. This list includes only varieties cultivated in America.

The most thorough study of cultivated currants made in America up to date is that of Paul Thayer, the results of which are published in Ohio Station Bulletin No. 371, *The Red and White Currants*, 1923. Thayer grew "more than 200 lots under 100 names." These, after much critical study, he resolves into 41 major and about 180 minor varieties, of which

he gives for each the botany, origin, history, and a full description. Thayer's studies also include the botany of the currant, both structural and systematic. All in all, it is the most notable pomological monograph yet published on the currant.

This brings us to the present work. In *The Small Fruits of New York*, 185 currants are described; of which 109 kinds have originated on this side of the Atlantic. The confusion in names and varieties is so great and of so long standing that duplication is unavoidable, and so many of the varieties described no longer exist that probably not a quarter of those described can now be obtained in American and European nurseries. Not more than eighteen or twenty varieties are cultivated in America, and less than half of these are of commercial importance. The acreage and yield of currants in America are shown by the figures in Table 3 taken from the last census.

TABLE 3. ACREAGE, YIELD AND VALUE OF CURRANTS IN THE UNITED STATES IN 1919, BY DIVISIONS AND STATES

DIVISION AND STATE	Acreage	Yield (in quarts)	Value
UNITED STATES	7,379	7,614,817	$1,421,908
Geographic Divisions:			
New England	531	436,729	$86,415
Middle Atlantic	3,140	3,758,104	686,761
East North Central	1,671	1,516,991	297,247
West North Central	770	438,633	88,810
South Atlantic	126	81,085	17,066
East South Central	18	8,692	1,610
West South Central	62	26,149	4,415
Mountain	518	482,307	90,206
Pacific	543	866,127	149,378
New England:			
Maine	44	20,429	$4,085
New Hampshire	142	18,140	3,628
Vermont	30	24,437	4,886
Massachusetts	236	266,908	53,382
Rhode Island	9	13,982	2,796
Connecticut	70	92,833	17,638
Middle Atlantic:			
New York	2,671	3,321,583	597,887
New Jersey	135	139,631	26,528
Pennsylvania	334	296,890	62,346
East North Central:			
Ohio	351	431,152	86,231
Indiana	56	56,742	13,049
Illinois	274	103,471	18,626
Michigan	629	636,481	127,295
Wisconsin	361	289,145	52,046

TABLE 3 — (*Concluded*)

DIVISION AND STATE	Acreage	Yield (in quarts)	Value
West North Central:			
Minnesota	247	208,863	$39,679
Iowa	95	77,953	15,587
Missouri	25	17,510	4,026
North Dakota	215	55,134	13,230
South Dakota	84	32,147	7,397
Nebraska	51	21,436	4,285
Kansas	53	25,590	4,606
South Atlantic:			
Delaware	2	1,390	320
Maryland	48	43,320	9,532
District of Columbia	2	212	59
Virginia	11	7,335	1,471
West Virginia	61	24,387	4,886
North Carolina	(1)	957	144
South Carolina	2	1,205	239
Georgia	(1)	2,242	406
Florida	(1)	37	9
East South Central:			
Kentucky	6	5,294	954
Tennessee	12	2,825	564
Alabama	(1)	573	92
Mississippi	.....	.....	.....
West South Central:			
Arkansas	11	4,701	941
Louisiana	.....	.....	.....
Oklahoma	51	20,359	3,258
Texas	(1)	1,089	216
Mountain:			
Montana	82	55,459	9,983
Idaho	109	72,000	12,245
Wyoming	26	15,266	3,820
Colorado	141	137,634	26,151
New Mexico	38	15,450	3,089
Arizona	5	6,856	2,058
Utah	108	172,201	30,997
Nevada	9	7,441	1,863
Pacific:			
Washington	148	254,959	38,245
Oregon	97	99,890	13,986
California	298	511,278	97,147

[1] Reported in small fractions.

THE BLACK CURRANT

The evolution of the black currant proceeds step by step with that of the red currant. The early herbalists, botanists, and pomologists who describe and give cultural directions for red and white currants usually include the blacks in their accounts. These writers paid quite as much or

more attention to the medicinal qualities of the products about which they wrote than to their food value, and the black currant, having a most marked taste and odor, was supposed to possess many virtues as a medicine and as such was in common use in nearly all northern countries of Europe. In Great Britain it was called the "*squinancy berry*" because of its common use in quinsy. Many of the early writers mention it only as a medicine. One of the old herbalists describes the fruit as "of a stinking and somewhat loathing savour," a characteristic still so marked that few would attempt to eat the fruit as a dessert. It is now and has ever been used as medicine, to make wine and other liquors, for jellies, jams, and for flavoring.

The geographical range of the black currant is about the same as that of the wild and cultivated red currants but if anything a little more northern. Only northern peoples seem to care for the fruit and its products. The black currant is little liked in France or southern Germany, but to the north of these regions and in northern Russia it is a rather common fruit. The farther north, the less disagreeable the odor and taste, and the larger the currants. We may assume, therefore, that its earliest culture was in some of the northern countries of Europe and that it was brought into gardens at about the same time and by the same people who first undertook the culture of the red currant. The Scotch and English seem fond of the fruit and nearly all of the varieties known to Americans came from Great Britain.

The black currant is little grown in America. Few Americans born in the country have tasted the fruit, or ever having done so care for a second taste. The product is almost never seen in fruit markets, and the growing of black currants is nowhere in the United States a commercial industry, although an occasional plantation may be seen in Canada. Here and there, plants are found in the gardens of Europeans settled in America or in those of their immediate descendants. The law in many states prohibits the culture of black currants because the plant is a host for the fungus which causes the pine blister-rust, a dangerous disease on certain pines. The black currant, for these reasons, though probably introduced in the United States as early as the red, has never become popular.

CHAPTER IX

THE SYSTEMATIC BOTANY OF CURRANTS AND GOOSEBERRIES

Several species each of Ribes and Grossularia are commonly cultivated in cool temperate and even sub-arctic climates under the names currants and gooseberries. The two genera are put by many botanists in a subtribe of the family Saxifragaceae, while others find them sufficiently different from other saxifrage-like plants to put them in a distinct family, Grossulariaceae, a procedure followed in this text. While species of the two genera are very different in aspect of plant, and in appearance and flavor of fruit, yet their close relationship is shown by similarities in botanical characters and by the hybridization of species in the two genera and the possibility of intergrafting. The two genera possess the following characters in common:—

They are shrubs of various habit, usually flowering from the old wood and sending up every year a number of young cions to replace the older decaying stems. On young branches the bark usually peels, and some species bear bristles along the internodes or spines at the nodes or below the insertion of the leaves. The leaves are alternate or spirally arranged on the longer branches, or clustered on the short lateral branchlets; they are stalked, without stipules, simple and more or less lobed and toothed.

The flowers are produced in racemes from the end of short lateral branchlets, usually at the time of the leaves unfolding in spring. Sometimes the racemes are short and even reduced to one flower (Grossularia). In Ribes the flowers are more numerous, from 6–20 or more in a raceme. Each pedicel is subtended by a small bract, and often two much smaller bractlets are seen below the ovary.

The ovary is inferior, 1-celled, with two parietal placentas and with several or numerous ovules. The calyx-tube or receptacle varies from flat to cup-shaped, urn-shaped to tubular, it has 5, rarely 4, segments or sepals and as many petals inserted alternately at the top of the receptacle. The stamens, equal in number, are inserted opposite the sepals. The style is more or less deeply cleft, often halfway down, into 2, rarely 3, lobes or branches.

The fruits are 1-celled pulpy berries, with several or many horizontal angular seeds; embryo minute, terete, embedded in the fleshy endosperm.

While many botanists unite the two genera under one as *Ribes*, others have preferred to keep them separate and have restored the genus *Grossularia* of Philipp Miller for the gooseberries. The two are easily distinguished:

A. Flowers in racemes or in clusters; racemes several- to many-flowered; pedicels jointed below the ovary. Fruit disarticulating from the pedicel .....*Ribes* (Page 255).

AA. Flowers in few-flowered racemes; pedicels not jointed. Fruit not disarticulating from the pedicel. Branches usually with spines at the nodes....*Grossularia* (Page 271).

RIBES. Linnaeus *Sp. Pl.* 201. 1753.

Ribesium. Medic. Phil. Bot. 120. 1789.

Currants.— Usually unarmed shrubs, but occasionally (sect. *Grossularioides* and *Berisia*) with stipular spines and bristles. Leaves palmately veined and more or less deeply lobed and serrate. Flowers in racemes, rarely clustered, hermaphrodite or unisexual and then dioecious; pedicels jointed below the ovary, often with 2 minute bractlets. Ovary glandular or smooth, never spiny; receptacle from shallowly saucer-shaped or rotate to tubular; the top disc-like, often thickened or with knobs or rings. Fruit disarticulating from the pedicel, red, white, yellow or black, often with a bloom, glabrous, glandular, or glandular-hairy.

KEY TO THE SUBGENERA

A. Flowers hermaphrodite (with perfect stamens and perfect ovary)
  B. Branches unarmed
    C. Ovary smooth, receptacle rotate or shallowly cup-shaped, rarely campanulate, never with stalked glands
      D. Plants glandless or glands crystalline, only on young growth; fruits usually red (whitish) or dark purple, more or less sweet or acidulous..... Red Currants: I. *Ribesia* (Page 256)
    DD. Plants with sessile yellow glands, chiefly on the underside of the leaves, and of a peculiar, mostly disagreeable smell; fruits black or brownish, of a peculiar or disagreeable flavour.....Black Currants: II. *Eucoreosma* (Page 266)
    CC. Ovary smooth or pubescent, or with stalked glands; receptacles from rotate, campanulate or urceolate to cylindrical
      D. Receptacle tubular, like the sepals bright yellow. Ovary glabrous. Berries glabrous yellow or black. Plants with crystalline glands only..... Golden Currants: III. *Symphocalyx* (Page 269)
    DD. Receptacles variously shaped and colored
      E. Receptacles variously shaped but not rotate, more or less glandular. Ovaries smooth, pubescent or with stalked glands. Berries red or black, often with a bloom, glabrous or pubescent or glandular..... Ornamental Currants: IV. *Calobotrya*[1]
      EE. Receptacle rotate. Plants only with crystalline not viscid glands. Ovaries and berries with gland-bearing bristles..... Dwarf Currants: V. *Heritiera*

[1] The plants of the subgenera IV–VIII have no pomological interest at present and are therefore not considered here. Those interested in them will find a fuller account in Technical Bulletin No. 109 of this Station.

BB. Branches with bristles and nodal spines; flowers rotate in drooping racemes, glandular.....Gooseberry-stemmed Currants: VI. *Grossularioides*

AA. Flowers unisexual and each sex on a different plant (dioecious)

B. Racemes erect.....Alpine Currants : VII. *Berisia*

BB. Racemes pendulous.....Andine Currants: VIII. *Parilla*

About 125 species of currants are known. Most of them are natives of the temperate and cooler regions of the Northern Hemisphere. Northern Asia and Europe possess a large number of them, but by far the greatest number inhabit America. The mountains of the Pacific Coast from Alaska to Patagonia are especially rich in species. Most of these western and southern American *Ribes* are ornamental, sometimes evergreen and delicate shrubs. None have so far proved to possess any value from the pomological point of view, nevertheless some might be profitably used in hybridizing. With a few exceptions, the currants cultivated for their fruits are natives of the Old World, particularly of Europe, from the Pyrenees to Scandinavia. No species enters the tropics in the Old World on account of the mountain chains stretching from east to west and causing sharp climatic separations.

Subgenus I. **Ribesia** Berlandier. Janczewski *Monogr. in Mém. Soc. Phys. et d'Hist. Nat. de Genève* 35:Pt. 3, 235. 1902.

Red Currants.— Unarmed shrubs, young shoots with thin papery outer bark soon peeling off. Buds middle sized, scales leathery.

Leaves plicate in bud, more or less maple-shaped, 3- to 5- to 7-lobed, with as many palmately branched veins, lobes mostly pointed; the base cordate or truncate; more or less pubescent, at least when young or entirely glabrous; glands, when present on the young growth, small, crystalline, not viscid, inodorous.

Inflorescence racemose; rhachis slender, pedicels from the axils of small bracts, articulated below the flower; bracteoles small or wanting.

Flowers with a rotate, pelviform (shallowly cup-shaped), turbinate or campanulate receptacle, modestly colored, mostly greenish, yellow to reddish or dark. The bottom of the receptacle concave or flat or with a disc-like, peculiar, somewhat pentangular rim or with 5 roundish humps below the petals. Calyx-lobes or sepals roundish, often broader than long, patent or recurved. Petals small cuneiform or flabelliform, usually a little brighter colored. Stamens inserted opposite the sepals, filaments short, anthers sometimes with an exceptionally broad connective. Style more or less deeply bifid. Ovary inferior or semi-inferior, roundish or turbinate, smooth.

Fruits mostly globular or oblong-roundish, mostly red, sometimes uncolored or white, or dark purple, crowned by the remains of the withered flower; mostly acidulous or insipid; seeds ovoid, numerous.

This subgenus comprises 15 more or less closely related species, natives of the Northern Hemisphere, out of which the following constitute our cultivated red currants.

KEY TO CULTIVATED SPECIES AND HYBRIDS OF RED CURRANTS

A. Flowers flat, rotate, or saucer-shaped with a more or less distinctly raised ring in the bottom of the flower

B. Ring very distinct, often of a dark color; anthers with a very broad connective. Leaves heart-shaped at the base; remains of the withered flower on the berries pentagonal at the base

C. Leaves 3- to 5-lobed, lobes spreading, mostly slightly pubescent, at length glabrous beneath.....*R. sativum*

CC. Leaves 3- to 5-lobed, the middle lobe the largest, of very firm texture and of a dark, almost bluish green, nearly smooth and glossy beneath; with big coarse teeth and coarse venation; berries very large..... *R. sativum macrocarpum*

BB. Ring present, but rather low and less distinct and the flowers not quite as flat. Bases of leaves varying from truncate to almost heart-shaped; remains of the withered flowers at the bases more or less roundish

C. Sepals not ciliate. Racemes drooping. Young shoots slightly pubescent; leaves mostly with truncate base, pubescent beneath. Anthers variable, but mostly with a broadened connective.....
R. houghtonianum (*R. rubrum* x *sativum*). (See also *R. warscewiczii*)

CC. Sepals ciliate. Racemes spreading horizontally. Young shoots glabrous. Anthers roundish ovoid, white.....*R. gonduini* (*R. petraeum* x *sativum*)

AA. Flowers pelviform or shallowly cup-shaped or bell-shaped

B. Sepals not or only very faintly ciliate; flowers pelviform or shallowly cup-shaped

C. Flowers without any ring, somewhat conically raised at the bottom of the style (best seen in a longitudinal section). Racemes spreading, more or less glandular. Leaves with a truncate or subcordate base, pubescent beneath. Withered remains of the flower on the berries with a roundish base.....*R. rubrum*

CC. Flowers with a flat bottom, on which a very faint ring is traceable on a longitudinal section; flowers, anthers, and berries larger than in *R. rubrum*. Racemes drooping. Leaves heart-shaped. Berries very acid.....*R. warscewiczii*

BB. Sepals ciliate; flowers decidedly bell-shaped, not shallowly cup-shaped

C. Flowers rather large, with a semi-inferior receptacle, the upper part prolonged and forming a stout conical base of the style; petals inserted on a thickened base.....*R. petraeum*

CC. Flowers with a distinctly inferior ovary, petals also inserted on a thickened base

D. Flowers with a faint ring at the bottom. Leaves rather large, truncate or cordate, 3- to 5-lobed. Vegetation early.....
R. gonduini (*R. petraeum* x *sativum*)

DD. Flowers without any trace of a ring

E. Stamens longer with curved filaments as long as the petals. Leaves large, 3- to 5-lobed, subpubescent, base truncate or subcordate.....
R. pallidum (*R. petraeum* x *rubrum*)

EE. Stamens straight, shorter than the petals. Leaves medium in size, strongly pubescent beneath, petiole short, tomentose.....
R. holosericeum (*R. petraeum caucasicum* x *rubrum*)

Ribes sativum Rchbch. Syme *Engl. Bot.* 3d Ed. 4:42. t. 520. 1865; Berger *N. Y. Sta. Tech. Bul.* 109:7. 1925.

R. rubrum var. *sativum*. Rchbch. *Fl. Germ. Excurs.* 562. 1830–32.

R. vulgare. Schneider *Ill. Hdb. Laubh.* 1:401. 1905; Janczewski *Monogr.* 276. 1907; Coville & Britton *N. Am. Fl.* 22:198. 1908; Rehder in Bailey *Stand. Cyc. Hort.* 5:2960. 1916; not Lamarck.

R. rubrum auct. Loudon *Arb.* 2:977. 1844; not Linnaeus.

R. domesticum. Janczewski *Pluralité des espèces de grosseilliers in Comptes rendus* 26:588. 1900.

R. silvestre, R. hortense Hedlund, Om *R. rubrum. Botaniska Notiser* 92. 1901.

Red Currant.— Erect shrub, 1–1.5 m high; growing shoots, leaves, and petioles pubescent and with hyaline globular glands, young branches with thin yellowish bark. Leaves cordate at the base, 3- to 5-lobed, more or less 5-angular, lateral lobes spreading, smaller than the middle one, crenate-serrate, the roundish teeth with a short pale point; smooth or with a few scattered hairs above, paler beneath and from scattered short hairs slightly pubescent, glabrous when old, about 7 cm long and 8 cm wide. Petioles 4–5 cm long, channeled above, widened and ciliate at the base, slightly pubescent. Racemes more or less drooping, about 5 cm long, rather lax, with 10–20 flowers; rhachis almost smooth; bracts small, ovoid, somewhat recurved; pedicels slender, 3–5 mm long, mostly smooth. Flowers rotate, greenish yellow. Receptacle saucer-shaped, with a flat bottom and a prominent elevated, roundish pentangular rim, the elevated angles of which are opposite the petals, this rim often reddish or brownish. Sepals spreading, broader than long, but the claw-like base lengthening after unfolding, patent, with the top revolute. Petals very small, cuneate, yellowish or reddish. Stamens erect, short, anthers with a broad connective, separating the anther-cells. Ovary roundish turpiniform (top-shaped), smooth. Style short, as long as the stamens, bifid halfway down. Fruits globular, crowned with the pentagonal remains of the flower, shining and transparent, usually red, acidulous, 6–10 mm across.

Western Europe; France, Belgium, Great Britain, western Germany, southern Sweden and northwestern Italy. In North America escaped from cultivation and subspontaneous from Massachusetts to Ontario and Wisconsin, south to Virginia, and in Oregon and British Columbia, and in Alaska. Chautauqua, Diploma, Versailles, and Wilder are typical cultivated varieties of this species.

R. sativum Syme var. **macrocarpum.** Bailey *Gent. Herb.* 1:134. 1923; Berger *N. Y. Sta. Tech. Bul.* 109:8. 1925.

R. vulgare var. *macrocarpum.* Janczewski *Monogr.* 279, figs. 22 & 23. 1907; Schneider *Ill. Hdb. Laubh.* 1:401. 1905; Rehder in Bailey *Stand. Cyc. Hort.* 5:2960. 1916.

R. acerifolium Hort.

Robust shrub of irregular growth. Leaves larger, deeply cordate at the base and with larger, roundish teeth, firmer, 3- to 5-lobed, lobes somewhat pointed, the middle lobe much the larger, of a dark, almost bluish green above, paler almost glossy and scarcely pubescent beneath. Racemes drooping; flowers larger, often finely dotted with red, with a prominent ring.

Origin unknown; perhaps a mutation. Said to have been introduced into France from Italy by Adrien Sénéclause, de Bourg-Argental, in the early half of the last century. But, perhaps it is much older than that, and possibly the "Great Red Currant," which John Tradescant, Senior, introduced from Holland to England in 1611, as mentioned in the second edition of Gerarde's *Herbal*, 1633, is the same thing, since the common *R. sativum* is a native of England. Cherry and Fay are the best known varieties of this group.

There is confusion about the wild species of red currants. Linnaeus created his name *R. rubrum* for a plant occurring in northern Scandinavia. With this the wild currant of western Europe was confounded by botanists during the last century. In 1789 Lamarck created a new name, *R. vulgare*, for *R. rubrum*, of which he distinguished two forms: *R. vulgare* var. *sylvestre* and var. *hortense*. The elder Reichenbach in his *Flora Germanica Excursoria*, 1830–1832, first clearly distinguished the two plants, but still as varieties of *R. rubrum*, i.e., *R. rubrum silvestre* and *R. rubrum sativum*. T. B. Syme in *English Botany*, third edition, 1865, raised Reichenbach's variety *sativum* to specific rank, and this is the name now commonly accepted. Lamarck's name, *R. vulgare*, must be rejected as a synonym of *R. sativum*.

R. sativum is always readily distinguished from *R. rubrum* by its leaves and flowers. The leaves are always more or less and often deeply cordate, the basal lobes often touching each other. In outline they are 3- to 5-lobed, often pentangular. The lateral lobes are widely spreading, thus the sinuses between the terminal and the lateral lobes are usually obtuse. The flowers are very flat, the ring always prominent.

R. sativum macrocarpum has larger leaves, usually more decidedly 3-lobed, the lobes more pointed, with larger, broader teeth and a deeper almost bluish color. Underneath they are often shining. Of course there are forms of which one is doubtful whether they belong to *R. sativum* or to *R. macrocarpum*.

The hybrids between *R. sativum* and *R. rubrum* and probably also between *R. sativum macrocarpum* and *R. rubrum*, have been named:

R. houghtonianum. Janczewski *Bul. Ac. Sci. Nat. Crac.* 296. 1901; *Ibid.* 23. 1904; Janczewski *Monogr.* 478. 1907. Schneider *Ill. Hdb. Laubh.* 1:402. 1905; Berger *N. Y. Sta. Tech. Bul.* 109:15. 1925.

R. acerifolium. Koch *Dendrolog.* 1:649. 1869.

To this hybrid belong a great many varieties of the cultivated red currants; the variety Houghton Castle was taken as type by Janczewski.

Red Dutch, White Dutch, and Perfection are typical of this group of hybrids. These hybrids resemble *R. sativum* rather than *R. rubrum* in habit; they are usually recognized by the shape of the leaves. The lateral lobes are not so spreading as in *R. sativum*, but point more forward. The sinuses between the terminal and the lateral lobes are therefore acute as a rule. The underside of the leaves is also more and often permanently pubescent. The teeth are large and round as in *R. sativum*. The racemes are spreading and gently recurved, puberulent. The flowers are almost the same as in *R. sativum*, but they are less flat and more shallowly cup-shaped and have a slightly raised ring. The anthers have a more or less widened connective. *R. houghtonianum* occurs also in a subspontaneous or spontaneous state.

Another hybrid with promising characters is:

R. futurum (*R. sativum macrocarpum* ♀ x *R. warscewiczii* ♂). Janczewski *Bul. Ac. Sci. Nat. Crac.* 292. 1904. Janczewski *Monogr.* 478. 1907; Schneider *Ill. Hdb. Laubh.* **1**:401. 1905; Berger *N. Y. Sta. Tech. Bul.* **109**:8. 1925.

Robust shrub; leaves rather large, cordate at the base, subglabrous. Flowers much like in *R. sativum macrocarpum*, receptacle slightly and shallowly cup-shaped, often reddish brown with a faint ring. Fruits rather large, acidulous. Raised by Janczewski in 1903.

Ribes rubrum. Linnaeus *Sp. Pl.* 200. 1753; Schneider *Ill. Hdb. Laubh.* **1**:403. 1905; *Ibid.* **2**:943. 1912; Janczewski *Monogr.* 287. 1907; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2960. 1916; Bean *Trees & Shrubs* **2**:409. 1921; Berger *N. Y. Sta. Tech. Bul.* **109**:14. 1925.

R. vulgare and *R. vulgare sylvestre.* Lamarck *Encyc. Bot.* **3**:47. 1789.

R. rubrum sylvestre. Rchbch. *Fl. Germ. Exc.* 562. 1830–32.

R. sylvestre. Syme *Engl. Bot.* 3d Ed. **4**:43, Pl. 522. 1865.

R. Schlechtendahlii. Lange *Ind. Sem. Hort. Haun.* 31. 1870.

R. Schlectendalii. Hort. Bean *Trees & Shrubs* **2**:409. 1921, wrongly spelled.

R. lithuanicum. Janczewski *Compt. Rend. Paris* 589. 1900.

R. scandicum and *R. pubescens.* Hedl. *Bot. Notiser* 100. 1901.

Northern Red Currant.— Erect shrub, 1–2 m high, young growth smooth or pubescent. Leaves broader than long, 3- to 5-lobed, the lobes ovoid-deltoid, rather short, the lateral ones pointing forward and hence the sides often almost parallel, the teeth rather small, the base truncate, reniform or sometimes cordate with scattered short hairs on the upper side, more or less pubescent beneath, 4–9 cm long and 5–11 cm wide. Petiole about 3–5 cm (8 cm, Janczewski) long, pubescent, more or less ciliate near the base.

Racemes 3–8 cm long, ascending or patent, not drooping, rather loose; rhachis and pedicels slightly pubescent or with minute crystalline glands; bracts small, ovate, obtuse or pointed, patent or recurving; pedicels up to 5 mm long, thin, occasionally with bracteoles below the ovary. Flowers shallowly cup-shaped or broadly funnel-shaped, pale green or

brownish. Receptacle yellowish inside, without any rim or humps but the bottom raised conically below the style; sepals shortly spatulate, roundish, finely striped with red and occasionally finely ciliate; petals very small, subspatulate pale reddish; stamens scarcely longer; anthers roundish. Ovary conical, glabrous; style bicleft, slightly overtopping the stamens. Fruits roundish or flattened at the poles, red or colorless, with the remains of the flowers circular, acidulous.

Northern Europe to northern East Asia; as far west as England and south to Westphalia in western Germany.

This is the *R. rubrum* of Linnaeus, "habitat in Sueciae borealibus;" it is quite different from the western European *R. sativum*, which has been confounded with it. London Market and Victoria represent this group best.

There are several varieties:

(1) var. **scandicum** Hedlund. Janczewski *Monogr.* 289. 1907.

R. rubrum pseudopetraeum. Baenitz *Oesterr. Bot. Zeitschr.* No. 7. 1892.

More vigorous shrub. Leaves glabrous above and beneath, pubescent only along the veins; the teeth somewhat larger and broader. Racemes 3–6 cm long, 10- to 15-flowered. Flowers pale to brownish.

Northern Europe; said to be rather rare. We have specimens from Denmark, Norway, and Sweden.

(2) var. **pubescens** Swartz. Janczewski *Monogr.* 289. 1907.

Less vigorous, young shoots slightly pubescent. Leaves with truncate or cordate base; with scattered single hairs above, densely pubescent at the back, especially when young; petioles with several fringes at the base. Racemes usually shorter. Flowers flesh colored or brown.

Northwestern Europe; from Scotland to Scandinavia, the Baltic countries, and Finland. Later in growing and flowering. To this belong Syme's var. *Bromfieldianum* (l. c. 44) with drooping racemes; var. *Smithianum* (l. c. 44) with erect flowering racemes; and var. *spicatum* (l. c. 44) with racemes of flower and fruit erect and pedicels shorter than the fruit.

(3) var. **glabellum.** Trautvetter & Meyer in Midd. *Sib. Reise* 1:2. 1856.

Glabrous shrub, young shoots reddish. Leaves mostly truncate at the base, glabrous on both sides except along the nerves beneath; petioles longer than the leaves, slender, often reddish. Racemes usually erecto-patent, short; rhachis, bracts, and pedicels glabrous and often glandless. Flowers brownish, paler at last. Fruit larger.

Northern Scandinavia to Siberia. Vegetation and flowers very early.

(4) var. **hispidulum.** Janczewski *Monogr.* 290. 1907.

R. rubrum var. *asiaticum.* Janczewski in Schneider *Ill. Hdb. Laubh.* 1:403. 1905.

Shrub 2 m high, young shoots with glandular hairs. Leaves rather large, often with a cordate base, more or less pubescent beneath. Petioles ciliate, pale or sometimes reddish. Racemes small, erect, 6- to 12-flowered, 1.5–3 cm long. Flowers densely set, small, pale. Fruits middle sized, acid.

Eastern Siberia.

(5) var. **palzewskii.** Janczewski *Monogr.* 290. 1907.

Robust shrub, 1.5 m; young shoots reddish, with scattered hairs. Leaves glabrous, longer than wide, 11 cm to 9 cm, 3-lobed, the lobes deltoid, pointed, the base truncate or wedge-shaped decurrent between the veins. Petiole about half as long as the blade (5 cm), glabrous, reddish. Raceme very short with a few pale flowers. Fruit ovoid or elliptic, acidulous.

Eastern Manchuria. Remarkable for its foliage.

R. rubrum Linn. is the northern red currant. It is easily distinguished from *R. sativum* by its leaves. The lateral lobes of these leaves always point forward, not spreading laterally, and the angles or sinuses between the terminal and the lateral lobes are consequently acute. The bases of the leaves vary considerably from heart-shaped or reniform to truncate or even rounded; the basal lobes, however, never touch or overlap as in *R. sativum*. Usually the leaf-blades are smaller than in *R. sativum*. The flowers are somewhat deeper and not as flat as in *R. sativum* and never have the thickened ring at the bottom which is so characteristic of *R. sativum*. Only a few commonly cultivated varieties are direct descendants of *R. rubrum*. According to Janczewski, however, there are varieties with red, rose-colored, and white berries, cultivated in northern Europe, especially in Lithuania, which have never found their way into the gardens of western Europe or into general cultivation.

Ribes warscewiczii. Janczewski in Vilmorin & Bois *Frutic. Vilmorinianum* 133. 1904; Janczewski *Monogr.* 284. 1907; Schneider *Ill. Hdb. Laubh.* **2**:943. 1912; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2964. 1916; Berger *N. Y. Sta. Tech. Bul.* **109**:13. 1925.

Erect shrub, 1–2 m high. Leaves rather large, roundish, with a cordate base, 3- to 5-lobed, lobes short, ovate, glabrous above, slightly pubescent beneath, especially along the veins, 9 cm long and 10 cm wide; petiole pubescent, ciliate near the base, about 6 cm long. Racemes drooping, about 5 cm long or more and with about 15 flowers; rhachis more or less pubescent, mottled with red; bracts small, ovoid; pedicels pubescent, 3 mm long; flower buds coppery red. Flowers smooth, changing from coppery red to pale flesh colored. Receptacle broadly funnel-shaped, widened above the ovary, inside flat, with a shallow rim best visible in longitudinal section; sepals roundish, broader than long but finally lengthening and spatulate; petals small, wedge-shaped, reddish; filaments as long as the petals, inserted on the edge of the receptacle, anthers large, roundish; style as high as the anthers, bifid. Fruits roundish, blackish purple, very acid, ripening in July.

Eastern Siberia, Yakoutsk, Ochotsk, and the lower Amur.

Allied to *R. rubrum*, flowers of the same shape, but larger, more highly colored, and racemes pendulous; fruits more acid. This is a very productive currant. See also its hybrid with *R. sativum macrocarpum*: *R. futurum*.

Ribes petraeum. Wulfen in Jacquin *Misc. austr.* **2**:36. 1781; Loudon *Arb.* **2**:979, fig. 727. 1844; Schneider *Ill. Hdb. Laubh.* **1**:403. 1905; *Ibid.* **2**:944. 1912; Janczewski *Monogr.* 290. 1907 & *Suppl.* 719–22. 1913; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2959. 1916; Bean *Trees & Shrubs* **2**:409. 1921; Berger *N. Y. Sta. Tech. Bul.* **109**:16. 1925.

R. bullatum. Otto & Dietr. *Allgem. Gartenztg.* **10**:267. 1842.

R. petraeum var. *bullatum.* Janczewski *Monogr.* 293. 1907.

Rock Currant.— Shrub 1–2 m high or more; growing shoots hirsute, generally glabrous later on, and grayish brown; older branches somewhat like those of the cherry, with distinct warts; buds conical, deep brown. Leaves roundish, 3- to 5- lobed, lobes more or less pointed, the middle one prominent, bullate between the veins, pubescent on both sides when young, smoother later on, dark green above, beneath more or less pubescent, at least along the veins, the base varying from deeply cordate to truncate, variable in size, reaching up to 15 cm, more or less doubly toothed. Petiole generally shorter than the blade, ciliate near the base. Racemes variably long, erect, patent or drooping, densely flowered; rhachis and pedicels more or less pubescent, bracts small; pedicels short, mostly twice as long as the bracts. Flowers green, suffused with purple, subcampanulate. Receptacle cup-shaped, or slightly bell-shaped, with a round hump below the insertion of each petal; sepals roundish spatulate, broader than long, spreading in their upper part, finely ciliate; petals rather large, spatulate or fan-shaped, as long as the erect base of the sepals; stamens inserted below the petals, curved with a thickened base, the anthers roundish ovoid, overtopping the petals. Ovary semi-inferior, its upper part conically prolonged and gradually passing in the shortly cleft style, which is about as high as the stamens. Ovary top-shaped. Fruits round, flattened at the poles, red or blackish red, with the remains of the flower roundish, acidulous.

Europe, northwestern Africa (Atlas), and northern Asia. Perhaps as far as the Sea of Ochotsk. High mountains. The European plants of this species occur in three forms.

(a) forma: **pyrenaica.**

Leaves rugose, with scattered long hairs above, along the margin, and beneath along the veins, especially hairy when young; lobes pointed, teeth with a sharp and rather long cusp; petioles pubescent, with long spreading glandular hairs, especially when young. Bracts strongly ciliate.

Pyrenees.

(b) forma: **alpina.**

Leaves rugose, with scattered hairs, etc., like in f. *pyrenaica*, though less abundant, also the petioles less hairy and glandular. Bracts shorter, obtuse, less strongly ciliate.

Alps, Vosges, and Black Forest.

(c) forma: **carpathica** Kit. Berger *N. Y. Sta. Tech. Bul.* **109**:16. 1925.

R. carpathicum. Kitaibel in Schultes *Oesterreich. Flora*, 2nd Ed. **1**:432. 1814.

Leaves flat, almost glabrous on both sides, also beneath along the veins, only when young with a few scattered hairs; lobes pointed, teeth less sharply mucronate than in f.

pyrenaica; petioles with several long fringes near the base, for the rest more or less glabrous, with a few glandular hairs when young. Racemes looser, pedicels shorter, often not exceeding the slightly ciliate bracts. Flowers a little smaller, rose-incarnate. Fruits deep red.

Riesengebirge, Sudeten, Tatra, and Carpathian Mountains. The following are Asiatic varieties:

(1) var. **caucasicum** Bieb. Janczewski *Monogr.* 293. 1907.

R. caucasicum. Bieberstein *Flora taurico-caucasica* **2**:160. 1819.

R. Biebersteinii. Berlandier *Mém. sur les Grossulariées in Mém. Soc. Phys. Sci. Nat. Genève* **3**:Pt. 2, 60. 1826.

R. petraeum var. *Biebersteinii.* Janczewski in Schneider *Ill. Hdb. Laubh.* **1**:403. 1905.

R. macrobotrys Hort. Rehder in Bailey *Stand. Cyc. Hort.* **5**:2959. 1916.

Leaves roundish, with a deeply cordate base and 5 short and rather obtuse lobes, flat, subglabrous or pubescent, about 12 cm long and 13 cm wide; petioles slender, subglabrous. Racemes sometimes 10 cm long. Flowers reddish, receptacle with a round hump below the petals. Fruits red or blackish red.

Caucasus, Armenia.

(2) var. **atropurpureum** Jancz. Schneider l. c.

R. atropurpureum var. α and var. γ. Meyer in Ledebour *Flor. Altaica* **1**:268. 1829; Ledebour *Icon. Flor. Rossicae* Pl. 231. 1831.

Leaves 3-lobed, middle lobe decidedly larger, the base truncate, flat, smooth above, softly pubescent beneath; petiole usually shorter than the blade, pubescent, with a few fringes at the base. Racemes short, 2–4 cm long, 10- to 15-flowered. Flowers urceolate, purple, paler inside, receptacle broadly rounded at the base, humps below the petals indistinct. Fruits rather large, dark purplish or black.

Eastern Siberia; Tobolsk, Tomsk, Altai, and Saiansk Mountains.

(3) var. **litwinowii.** Janczewski *Monogr.* 294. 1907.

R. atropurpureum var. β. Meyer l. c.

Young shoots short and stout, with glandular hairs. Leaves 5-lobed, roundish, lobes mostly short, base very deeply cordate, flat, shining green and with scattered glandular hairs above; petioles with glandular fringes. Racemes very short, 1.5 cm long, with 7–10 flowers. Flowers purple. Fruits purplish black.

Eastern Siberia; Altai and Saiansk Mountains.

(4) var. **altissimum.** Janczewski l. c. & *Suppl.* **3**:721. 1913.

R. altissimum. Turczaninow in Ledebour *Fl. Ross.* **2**:199. 1844–46.

Robust shrub, reaching 3 m in height; young shoots pale yellow, subglabrous. Leaves rather large, roundish, with a cordate base, 5-lobed, 9 cm to 10.5 cm wide, pubescent along the veins beneath; petiole 4 cm long. Racemes 7–10 cm long, with as many as 20 flowers; bracts pubescent; pedicels 2.5–5 mm long. Flowers shortly bell-shaped, copper red. Receptacle cup-shaped, not thickened below the petals. Stamens inserted slightly below the petals.

Siberia; in the region of Lake Baikal, Mongolia. First cultivated in Petersburg Botanic Garden, raised from seeds collected by Przewalski. Starts late in the spring. Cultivated at the Arnold Arboretum.

(5) var. **tomentosum.** Maximowicz *Bul. Ac. Pet.* **19**:260. 1874; Janczewski *Monogr. Suppl.* **3**:721. 1913.

Young shoots pale, pubescent, and glandular hairy. Leaves 5-lobed, lobes rather long, pointed, base cordate, 9 cm long and 10 cm wide, slightly hairy above, pubescent beneath with longer hairs along the veins; petiole 7 cm long, pubescent, and glandular hairy. Racemes 7 cm long, with as many as 27 flowers; rhachis pubescent and with scattered longer hairs; pedicels 1–2 mm long, hairy. Flowers subcampanulate, rather pale, buds copper red, receptacle without humps below the reddish petals; stamens and style reddish. Fruit pale red.

Eastern Siberia, Amur River.

All of the *R. petraeum* varieties have bell-shaped flowers without any rim, the upper part of the ovary is projecting into the cup-shaped receptacle or calyx-tube and forms a thick conical base of the style. The sepals and petals are rather large. The berries are usually more acidulous than in *R. sativum*. *R. petraeum* and its offspring are late in starting into growth in spring. Several cultivated varieties are derived from this species, none of which, however, are well known as of great commercial importance, except in hybrids to be noted later. The most important of these is with the northern red currant, *R. rubrum*, which probably originated in the 18th century. This hybrid is known as *R. pallidum*, Otto & Dietrich *Allgem. Gartenztg.* 268. 1842 (or *R. ciliatum* Kit. in Kanitz *Linnaea* 480. 1863, or *R. Kitaibelii* Dörfler *Herb. Norm.* No. 4264. 1902).

Though intermediate in most respects, this hybrid most nearly resembles *R. petraeum*. It is a robust shrub, starting late into vegetation and flower. The leaves are rather large, 3- to 5-lobed with a subcordate or truncate base and with the pubescence of *R. rubrum*, the lobes on leaves of young shoots however a little more acute than in *R. rubrum*. The racemes are longer and not quite as dense, though much the same as in *R. petraeum*, they have up to 25 flowers, more than either parent. The single flowers come near to those of *R. petraeum*, but agree with those of *R. rubrum* in having no round humps below the insertion of the petals. To this hybrid belongs the cultivated variety Prince Albert (syn. Holländische Korallenbeere, Rouge de Hollande, etc.).

The hybrid between *R. petraeum caucasicum* and *R. rubrum* (*R. holosericeum*, Otto & Dietrich *Allgem. Gartenztg.* 266. 1842) has smaller flowers than the last, more like those of *R. rubrum*, and smaller leaves with stronger

pubescence underneath. This hybrid has almost entirely sterile pollen and is of little value as a fruit plant.

The hybrid of the rock currant, *R. petræum*, with the red currant, *R. sativum*, is named *R. gonduini*, Janczewski *Bul. Ac. Sci. Nat. Crac.* 298. 1901. It has large rather short 3- to 5-lobed leaves. The racemes are similar to those of *R. sativum*, spreading; the flowers equally intermediate, with reflexed ciliate sepals and a faint ring inside; the anthers are oblong like those of *R. petraeum*. It originated in the nursery of M. Gondouin at St. Cloud, and is known as " Gondouin " or " Grosseillier Gondouin rouge " or " sehr frühe Hochrote." It resembles the *R. pallidum* (Prince Albert), but the leaves are thicker and darker, and the flowers have a faint ring inside. It retains its leaves late in the fall.

Subgenus II. **Eucoreosma.** Janczewski *Bul. Ac. Sci. Nat. Crac.* **2**:7. 1906; Janczewski *Monogr.* 245. 1907.

Black Currants.— Deciduous shrubs except for *R. viburnifolium;* young shoots glabrous or downy with sessile yellow resinous dots or glands on all the young parts, on the scales of the winter buds, and chiefly on the back of the leaves; the whole plant of a distinct, often disagreeable odor. Leaves 3- to 5- to 7-lobed, lobes generally pointed, and shortly or incisedly serrate, resinous dotted sometimes also on the upper surface. Racemes varying in the different species in length, drooping or erect. Receptacle varying from cup-shaped to campanulate-tubular, often resinous dotted, sepals spreading or recurved. Stamens inserted at about the same level as the petals, anthers roundish. Ovary glabrous, in most cases with resinous dots or glands, generally inferior, but in some species distinctly semi-inferior and its upper part extending into the bottom of the receptacle. Style mostly shortly bifid. Fruits black or brownish, sometimes edible, but mostly of a special, often disagreeable flavor.

This subgenus comprises 12 species, all natives of the Northern Hemisphere, extending south to northern Mexico.

Only two species are important as fruit plants.

A. Racemes 5- to 15-flowered
  B. Flowers tomentose, campanulate-urceolate.....*R. nigrum*
  BB. Flowers pubescent or glabrous, tubular-campanulate.....*R. americanum*
AA. Racemes 3- to 5-flowered, broadly campanulate.....*R. culverwellii*

Ribes nigrum. Linnaeus *Sp. Pl.* 201. 1753; Loudon *Arb.* **2**:983, fig. 734. 1844; Card *Bush-Fr.* 473. 1898; Schneider *Ill. Hdb. Laubh.* **1**:422. 1905; *Ibid.* **2**:953. 1912; Janczewski *Monogr.* 347. 1907; Coville & Britton *N. Am. Fl.* **22**:197. 1908; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2959. 1916; Bean *Trees & Shrubs* **2**:405. 1921; Berger *N. Y. Sta. Tech. Bul.* **109**:30. 1925.

Black Currant.— Vigorous upright shrub, 1–2 m high, young shoots pale, subglabrous or pubescent, with scattered sessile yellow glands. The whole plant has a peculiar aromatic

smell. Leaves large, up to 10 cm long and 12 cm wide, 3- to 5-lobed, with a deep cordate base, the lobes ovate, pointed, the lateral ones spreading, the middle one the largest, the margins sharply doubly serrate, the teeth mucronate, often broader than long, bright green and glabrous above, paler beneath, glabrous or pubescent along the veins; with numerous amber-colored, resinous dots or sessile glands scattered chiefly on the lower surface, a very few occasionally on the upper side of the leaves. Petiole as long or shorter than the blade, pubescent, with several plumose fringes at the base. Racemes spreading or pendulous, 3–5 cm long, with 5–10 flowers, rhachis, bracts, and pedicels pubescent; bracts short, ovoid; lower pedicels 10 mm long, often with minute bracteoles. Flowers campanulate-urceolate, tomentose; receptacle wider than long; sepals reflexed at the middle, ligulate, twice as long as broad, obtuse, tomentose on both sides, purplish; petals erect, ovate, whitish or reddish, shorter than the sepals. Stamens inserted at the same level, anthers whitish, oblong, almost as high as the petals. Ovary semi-inferior, obovate-obconical, glabrous or slightly pubescent with sessile yellow glands; style erect, shortly cleft, as long as the anthers. Fruits subglobose, large, black, 8–10 mm across, glandular, with a peculiar smell and taste.

Europe, as far north as Scandinavia, northern and central Asia; subspontaneous in North America. Five botanical varieties are recognized.

(1) var. **heterophyllum** Pepin. Rehder in Bailey *Stand. Cyc. Hort.* **5**:2959. 1916.
var. *laciniatum* Lav. and var. *crispum* Hort. Rehder l. c.
var. *aconitifolium*. Kirchner *Arbor. Musc.* 412. 1864.

Leaves very deeply 3- to 5-lobed, lobes lanceolate, terminal lobe ovate-lanceolate; margins deeply and irregularly toothed.

(2) var. **apiifolium.** Kirchner *Arbor. Musc.* 1864.
var. *dissectum*. Nicholson in Rehder l. c.

Leaves 3-parted to the base, each part again bipinnately cut with narrow segments.

(3) var. **xanthocarpum** Spaeth in Rehder l. c.
var. *fructu luteo* Hort.

Fruits yellow.

Besides these there occur in gardens forms with variegated leaves (var. *variegatum*, *marmoratum*, *reticulatum*).

(4) var. **pauciflorum** Turczaninow. Janczewski *Monogr.* 348. 1907.
R. pauciflorum Turcz. ex Ledebour *Fl. Ross.* **2**:200. 1844.

Less robust shrub; leaves shining, buds reddish. Flowers longer, more campanulate; style cleft almost to the middle.

Central Asia, Siberia.

(5) var. **chlorocarpum.** Spaeth in Rehder l. c.
var. *fructu viridi* Hort.

According to Janczewski *Monogr.* 748, this is a form of var. *pauciflorum*, the Asiatic variety.

The cultivated varieties of black currants are mostly descendants of *R. nigrum*. There are a large number of them, but they are badly mixed

in trade and one hardly knows which names are rightly applied, as the original descriptions of the varieties are insufficient for identification. An attempt to find a method of classification has been made by Ronald G. Hatton at the Fruit Experiment Station, East Malling, England. (*Jour. Pom.* **1**:65, 80, 145–154. 1919.) The black currant has been crossed with the European gooseberry; and this hybrid, *R. nigrum* x *Grossularia reclinata*, is known as *R. culverwellii*, MacFarlane *Trans. Roy. Soc. Edinb.* **37**:203. 1892; *Gard. Chron.* 3d Ser. **28**:7. 1900.

It was first raised by a Mr. Culverwell, Thorpe Perrow, Yorkshire, in 1880. (See *Gard. Chron.* **19**:635. 1883.) It has been repeatedly produced, also the reversed cross (*R. Schneideri Maurer* in *Koehne Gartenflora* 409. 1902.) At Geneva the cross has been made several times and a great number of individuals were grown which represented all possible intermediate forms of the two species. Some individuals were scarcely different from *R. nigrum*, others were more like *Grossularia*, but all were unarmed and not all had the peculiar scent of *R. nigrum*.

Ribes americanum. Miller *Gard. Dict.* 8th Ed. No. 4. 1768; Card *Bush-Fr.* 481, fig. 107. 1898; Coville & Britton *N. Am. Fl.* **22**:206. 1908; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2959. 1916; Bean *Trees & Shrubs* **2**:398. 1921; Berger *N. Y. Sta. Tech. Bul.* **109**:33. 1925.

R. floridum. L'Hér. *Stirp.* Nov. 4. 1785; Loudon Arb. **2**:985, fig. 735. 1844; Britton & Brown *Ill. Fl.* **2**:191, fig. 1784. 1897; Schneider *Ill. Hdb. Laubh.* **1**:421. 1905; Janczewski *Monogr.* 350. 1907; Gray *New Man.* 7th Ed. 451. 1911.

R. nigrum pennsylvanicum. Marshall *Arbust.* 132. 1785.

R. americanum nigrum. Moench *Verz. ausländ. Bäume* 104. 1785.

R. pennsylvanicum. Lamarck *Encyc.* **3**:49. 1789.

R. campanulatum. Moench *Meth.* 683. Pl. 6. 1795.

R. recurvatum. Michaux *Fl. Bor. Am.* **1**:109. 1803.

Coreosma florida. Spach *Am. Sci. Nat.* **2**:4, 22. 1835.

R. floridum grandiflorum and *R. floridum parviflorum.* Loudon *Arb.* 986. 1836.

R. missouriense Hort. (not Nutt.) in Bean *Trees & Shrubs* **2**:398. 1921.

American Wild Black Currant.— Shrub of spreading or erect habit, 0.5–1.5 m high; young branches from downy to subglabrous, glandular-dotted; old wood with gray or a blackish bark. Leaves from a truncate or more or less broadly cordate base 3- to 5-lobed, the lobes ovoid and more or less pointed, sharply and coarsely toothed, the lower lobes generally indistinct, bright green, paler and more or less pubescent, at least along the veins beneath and with numerous resinous glands or dots, also on the upper surface, about 4.5–7 cm long and 5–9 cm wide. Petiole slender, about equaling the blade, more or less pubescent, glandular-dotted, generally with several plumose fringes near the base. Racemes up to 10 cm long, drooping, with 5–15 flowers; rhachis, bracts, and pedicels pubescent; bracts

lanceolate, pointed, 6–10 mm long, overtopping the pedicels, more or less recurved, rarely with glandular dots. Flowers greenish white or yellow, glabrous or slightly pubescent; receptacle tubular-campanulate, longer than wide; segments ligulate-oblong, obtuse, generally shorter than the receptacle and twice as long as wide, spreading or recurved at the top; petals obovate, about $\frac{3}{4}$ as long as the sepals, erect, white. Stamens inserted at the same level; anthers roundish, white, almost as long as the petals. Ovary small, pyriform or obovate, glabrous; style thickened at the base, shortly split, about equaling the anthers. Fruits black, smooth, roundish, similar in taste to that of *R. nigrum*.

North America; from New Mexico to Virginia and east of the Rocky Mountains into Canada, in woods and thickets.

(1) var. **intermedium** Tausch. Janczewski *Monogr.* 352. 1907.

R. intermedium. Tausch *Flora* **21**:720. 1838.

Lobes of the leaves less pointed or obtuse. Flowers more campanular with a shorter receptacle.

Vermont. This variety is not a hybrid with *R. nigrum*, as supposed by Dippel (Handbuch der Laubholzkunde III. 296) and the plants cultivated in Bohemian gardens are probably forms of *R. nigrum*. *R. americanum* is occasionally cultivated as an ornamental shrub, as its foliage assumes brilliant hues of crimson and yellow in the autumn. The whole shrub, especially the foliage, possesses the same heavy odor as *R. nigrum*. As a fruit plant one variety, Sweet Fruited Missouri, has been in cultivation in the United States; it is said to be a slight improvement upon the common wild black currant.

Subgenus III. **Symphocalyx.** Berlandier *Mém. Soc. Phys. et Sci. Nat. Gen.* **3**:2, 56. 1826; Janczewski *Monogr.* 244. 1907.

Aurea. Coville & Britton *N. Am. Fl.* **22**:195. 1908.

Golden Currants.— Erect shrubs with virgate shoots, throwing out many suckers from the roots. Young growth, cions, and leaves with small crystalline pulverulent glands, glabrous later on. Leaves convolute in bud, of rather firm texture, very variable in shape, from ovate-cuneate to roundish reniform, 3- to 5-lobed, lobes entire or toothed. Racemes short, spreading, or slightly nodding, bracts foliaceous. Flowers yellow or orange-yellow, with a long tubular receptacle, fragrant; sepals spreading or recurved; petals much smaller, erect; petals and stamens inserted at the same level and about as long. Ovary glabrous, style somewhat exserted, slightly bifid. Berries glabrous, yellow or black, without bloom.

Central and northwestern United States to northern Mexico. The five species of this group are very closely allied and scarcely more than geographical varieties of one species in a broad sense. The differences between them are chiefly dependent upon the size of the receptacle, and as intermediate forms occur they are not always readily distinguished. The

degree of pubescence, the length of the receptacle, its color, and the color of the petals and of the fruits vary a great deal. There is no deciding difference in the structure.

A. Receptacle 12–15 mm long; sepals revolute or spreading, not connivent after flowering *R. odoratum*

AA. Receptacle 5–9 mm long; sepals 5–8 mm long, spreading, connivent after flowering *R. aureum*

Ribes odoratum. Wendland in Bartl. & Wendl. *Beitr.* **2**:15. 1825; Coville & Britton *N. Am. Fl.* **22**:205. 1908; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2958. 1916; Berger *N. Y. Sta. Tech. Bul.* **109**:40. 1925.

R. longiflorum Nutt. as synonym in Lindley *Bot. Reg.* Pl. 125. 1816.

R. fragrans. Loddiges *Bot. Cab.* Pl. 1533. 1829. Not R. fragrans Pallas 1797.

Chrysobotrya revoluta. Spach *Ann. Sci. Nat.* 2nd Ser. **4**:2, 19. 1835.

R. Oregoni. Hering *Hort. Franc.* 225, Pl. 8. 1872.

R. aureum Auct. Lindley *Bot. Reg.* Pl. 125. 1816; Loudon *Arbor.* **2**:989, f. 742. 1844; Britton & Brown *Ill. Fl.* **2**:192, fig. 1877. 1897; Card *Bush-Fr.* 482, fig. 118. 1898; Schneider *Ill. Hdb. Laubh.* **1**:416. 1905; *Ibid.* **2**:953. 1912; Janczewski *Monogr.* 333. 1907; *Bul. Ac. Sci. Nat. Crac.* 82. 1910.

R. revolutum Spach. Janczewski *Bul. Ac. Sci. Nat. Crac.* 84. 1910.

R. aureum grandiflorum f. *revolutum.* Janczewski *Bul. Ac. Sci. Nat. Crac.* 91. 1910.

R. aureum ginkoëfolium Hort. Janczewski l. c. 84. 1910.

Missouri Currant, Buffalo Currant, Golden Currant.— Erect shrub about 2–2.5 m high, with virgate branches; young branches pubescent, older branches gray. Leaves of cions up to 65 mm long and 75 mm wide, firm of texture, roundish with a straight truncate or slightly reniform base, deeply 5-lobed, lobes obtuse, mostly coarsely 3-toothed or incised at the top; smaller leaves ovate-spatulate, with a cuneate base, 3-lobed, and the lobes obtuse, entire or crenate; petioles pubescent, shorter than the blades. Racemes 4–6 cm long, spreading or pendulous, 5- to 8-flowered; rhachis and bracts pubescent or glabrous; bracts foliaceous, ovate or oval, the lower sometimes 12–15 mm long; pedicels shorter, glabrous or puberulent. Flowers bright yellow, fragrant; receptacle tubular, straight or slightly bent, 12–15 mm long, glabrous; sepals oblong, obtuse, 5–6 mm long, revolute or spreading, not connivent after fading; petals 2–2.5 mm long, oblong, obtuse or erose, more or less red, erect. Stamens with oblong white anthers, as long as the petals. Ovary obconical or obovate, glabrous; style very shortly bifid, longer than the stamens. Berries globose or ovoid, 10 mm across or more, black or orange-yellow (forma *xanthocarpum* Rehder).

North America; in the great plains east of the Rocky Mountains, from South Dakota to Texas, east to Minnesota and Arkansas. Much cultivated as a flowering shrub and also as a stock upon which to graft other species of *Ribes* and *Grossularia*, usually known in gardens under the wrong name of *Ribes aureum*. A cultivated variety is known as Crandall. It has larger edible fruits.

(1) var. **intermedium** Spach. Rehder.

Chrysobotrya intermedia. Spach *Ann. Sci. Nat.* 2nd Ser. **4**:19. 1835.

R. intermedium Spach. Janczewski *Bul. Ac. Sci. Nat. Crac.* 86. 1910.

R. aureum intermedium Spach. Janczewski l. c. 91, fig. 2, 1910.

R. aureum fructu rubro Hort. and *R. aureum acerifolium* Hort. Spaeth in Janczewski l. c. 86. 1910.

Racemes spreading, sepals not revolute, spreading. Fruits purplish brown to black.

(2) var. **leiobotrys** Koehne. Rehder.

Glabrous throughout; sepals recurved, not revolute. Fruit black.

Ribes aureum. Pursh *Fl. Am. Sept.* 164. 1814; Heller *Muhlenbergia* **1**:69. 1904; Coville & Britton *N. Am. Fl.* **22**:204. 1908; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2958. 1916; Berger *N. Y. Sta. Tech. Bul.* **109**:41. 1925.

R. jasminiflorum. Agardh *Sv. Landtbr. Akad. Ann.* **9**:143. 1823.

R. flavum. Berlandier *Mém. Soc. Gen.* III. **2**:60. 1826.

R. tenuiflorum. Lindley *Trans. Hort. Soc. London* **7**:242. 1828; Loudon *Arb.* **2**:990, fig. 744. 1844; Janczewski *Bul. Ac. Sci. Nat. Crac.* 86. 1910.

R. inodorum. Link *Hand.* **2**:7. 1831.

Chrysobotrya Lindleyana. Spach *Ann. Sci. Nat.* 2nd Ser. **4**:20. 1835.

R. aureum tenuiflorum. Torrey *Pacif. R. R. Rep.* **4**:88. 1857; Card *Bush-Fr.* 483, fig. 109. 1897; Janczewski *Bul. Ac. Sci. Nat. Crac.* 91. 1910.

Shrub of about 2 m, young shoots red. Leaves of cions about 5 cm long and 6 cm wide, orbicular-reniform to obovate; 3-lobed, with a cuneate, rounded or subcordate base, lobes subobtuse, little toothed, petioles shorter or about as long as the blades. Racemes 3–7 cm long, spreading, 5- to 15-flowered; bracts oblong to obovate, 5–12 mm long; pedicels shorter. Flowers more or less fragrant; receptacle slender, 5–9 mm long and about 1.5 mm wide; sepals spreading, 5–8 mm long, upright in the faded flower; petals scarcely half as long, oblong, erose, orange-red at last. Berries globose, red or black, variable in size, 6–8 mm across or more.

West North America; from Washington to California, eastward to Assiniboia, Montana, Colorado, and New Mexico. A smaller and more slender shrub than *R. odoratum* and with less showy flowers.

(1) var. **chrysococcum.** Rydberg *Fl. Nebr.* **21**:71. 1895.

Berries yellow.

Forms with red receptacles occur in Idaho. A cultivated variety, Golden Prolific, seems to belong to this species.

GROSSULARIA Tourn. Miller *Gard. Dict.* 7th Ed. 1759; Coville & Britton *N. Am. Fl.* **22**:209. 1908.

Robsonia Berland. Spach *Hist. Veg.* **6**:180. 1838.

Ribes Auct.

Shrubs with tortuous branches and spines at the nodes and often bristly along the internodes; nodal spines generally in 3, rarely in 5 or more, or solitary or wanting; buds sessile. Racemes few flowered, short; bracts small; pedicels jointed at the base; the bract-

lets, if present, at the base of the pedicels and hidden by the bracts. Ovary bristly, glandular, hairy or smooth; receptacle varying from broadly campanulate to cylindrical; sepals, petals, and stamens 4–5; style thin, more or less bifid. Fruit not disarticulating from the pedicels, usually larger than in *Ribes*, smooth, glandular, or prickly.

This genus, comprising the Gooseberries, is usually treated as a subgenus or a section of *Ribes;* but gooseberries are widely separated from currants in several important botanical characters, and are so different pomologically, that it seems best to put them in a separate genus as many modern botanists do.

Gooseberries are natives of the North Temperate zone. There are about 52 species, most of which inhabit North America, being especially abundant in the Pacific part of the continent. Only a few occur in Mexico. The Old World is less rich in species. We can only consider here species which have produced cultivated varieties. The oldest of these, of course, is the European gooseberry, *G. reclinata*.

Key to the Species

A. Ovary with soft glandless bristles; receptacles greenish, glabrous, sepals shorter than the receptacle ..... *G. cynosbati*

AA. Ovary without bristles, smooth or pubescent or with stalked glands

B. Stamens exceeding the sepals, often twice as long

C. Perianth greenish white, stamens twice as long as the sepals ..... *G. missouriensis*

CC. Perianth purplish or purplish green

D. Perianth glabrous, stamens as long or longer than the sepals ..... *G. divaricata*

DD. Perianth pubescent outside, hairy inside; stamens exceeding the sepals ..... *G. van-fleetiana*

BB. Stamens about as long as the sepals, mostly twice as long as the petals or shorter

C. Leaves (on cions) usually obovate or ovate with a decidedly wedge-shaped base. Flowers 5–7 mm long; stamens twice as long as the petals ..... *G. hirtella*
(Flowers hairy at the throat inside, see *G. downingiana*.)

CC. Leaves not so and with a more or less truncate base

D. Bud scales white tomentose along the margins. Peduncles very short, scarcely exceeding the bud scales; receptacle glabrous ..... *G. oxyacanthoides*

DD. Bud scales not white tomentose along the margins; peduncle longer

E. Receptacle glabrous inside and outside

F. Sepals shorter than the receptacle ..... *G. cynosbati inermis*

FF. Sepals 2–3 times as long as the receptacle ..... *G. divaricata*

EE. Receptacle hairy inside

F. Receptacle pubescent outside

G. Stamens twice as long as the petals ..... *G. rustica*
(See also *G. van-fleetiana*.)

GG. Stamens as long as the petals, sepals mostly brownish red

H. Leaves glossy ..... *G. reclinata*

HH. Leaves hoary pubescent on both sides ..... *G. reclinata uva-crispa*

FF. Receptacle smooth outside, stamens as long as the sepals ..... *G. downingiana*

Grossularia cynosbati Linn. Miller *Gard. Dict.* 8th Ed. No. 5. 1768; Coville & Britton *N. Am. Fl.* **22**:220. 1908; Berger *N. Y. Sta. Tech. Bul.* **109**:91. 1925.

Ribes cynosbati. Linnaeus *Sp. Pl.* 202. 1753; Loudon *Arb.* **2**:970. 1844; Britton & Brown *Ill. Fl.* **2**:188, fig. 1865. 1897; Card *Bush-Fr.* 464. 1898; Schneider *Ill. Hdb. Laubh.* **1**:411. 1905; *Ibid.* **2**:950. 1912; Janczewski *Monogr.* 383, fig. 108. 1907; Gray *New Man.* 7th Ed. 451. 1911; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2962. 1916; Bean *Trees & Shrubs* **2**:403. 1921.

Ribes gracile. Michaux *Fl. Bor. Am.* **1**:111. 1803; Torrey *Fl. U. S.* 269. 1824.

Wild Gooseberry.— Much-branched, divaricate shrub, 1.5 m high, with slender branches, young shoots and cions brown, pubescent, in the lower part with many weak, reflexed, often gland-tipped bristles, near the top and on weaker shoots devoid of bristles; nodal spines 1–3, straight, subulate, brown, spreading or pointing downwards, 10–15 mm long or more. Leaves variable but mostly roundish ovate, with a truncate or subcordate base, 3- to 5-lobed, lobes more or less pointed or obtuse, crenate or incised-crenate, middle lobe the longest, lateral ones spreading, the lowest two often indistinct, the sinus variable; texture rather thin, dark green and pubescent above, paler and softly pubescent beneath, ciliate on the margins; varying in size, on cions often 6 cm long and 6.5 cm wide. Petioles shorter than the blades, about 25–35 mm long, pubescent and with long soft, often gland-tipped hairs, especially near the base. Peduncles and pedicels slender, about as long as the petioles, pubescent and glandular-hairy; bracts ovate, small, pubescent and glandular-ciliate, much shorter than the usually 5–10 mm long, often glabrous pedicels. Ovary small, roundish, glabrous, but usually with several or many, small, pointed bristles; receptacle campanulate or cylindrical-campanulate, much broader than the ovary, greenish, glabrous, 3–4 mm long; sepals shorter than the receptacle, oblong, obtuse, green; petals obovate, shorter than the sepals, white; stamens a little longer, anthers oblong; style bifid, pubescent below. Berry globose or oblong, wine-red, 8–12 mm across, more or less beset with stout prickles, edible, though with rather thick skin.

Eastern North America; from New Brunswick to North Carolina and Alabama in the South, to Missouri in the West and to Manitoba in the North, common in woods and rocky places. A variable species in all its parts. The young shoots are glabrous or finely pubescent and with numerous bristles or without. The shape and pubescence of the leaves and petioles vary greatly.

The following varieties have been named; they occur with the type:

(1) var. **inermis.** Rehder in Bailey *Stand. Cyc. Hort.* l. c.

Ovary and fruit without prickles.

This may be sometimes mistaken for some forms of *G. hirtella*, but it has much longer peduncles and the stamens are about as long as the petals.

(2) var. **glabrata** Fernald.

Leaves glabrous or only slightly pubescent or pilose on the veins.

(3) var. **villosa** Berger.

Growing shoots and petioles villous, prickly and densely mixed with long, reddish, flexuous, gland-tipped bristles; leaves on young shoots very villous beneath, pubescent above intermixed with a few scattered stouter hairs.

G. utilis Janczewski. Berger (*G. cynosbati* x *reclinata*).

Ribes utile. Janczewski *Monogr.* 494. 1907.

Shrub about 1 m high, subglabrous; nodal spines solitary. Leaves small, almost those of *G. reclinata*, subcoriaceous, shining green, subglabrous. Peduncles short, usually 2-flowered, finely pubescent, bracts roundish, ciliate with stalked glands. Flowers pale, subpubescent; receptacle about as long as wide, pubescent inside; sepals reflexed, with a reddish base and margins, shorter than the receptacle; petals small, flabelliform, white; stamens almost twice as long. Ovary glabrous; style bifid, pubescent below. Fruits ovoid, 1.5 cm long, glabrous or sometimes with a few bristles, more or less purplish.

To this hybrid belongs the cultivated variety Mountain or Amerikanische Gebirgsstachelbeere (Maurer *Stachelbeerbuch* 66, fig. 26 1913.)

Grossularia missouriensis Nutt. Coville & Britton *N. Am. Fl.* **22**:221. 1908; Berger *N. Y. Sta. Tech. Bul.* **109**:92. 1925.

Ribes missouriensis. Nuttall in Torrey & Gray *Flora of North America* **1**:548. 1840; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2961. 1916.

R. gracile. Britton & Brown *Ill. Fl.* **2**:188, fig. 1867. 1897; Card *Bush-Fr.* 455. 1898; not *R. gracile* Michaux, 1803; not Pursh, 1814.

R. rotundifolium. Schneider *Ill. Hdb. Laubh.* **1**:415. 1905; *Ibid.* **2**:951. 1912; Janczewski *Monogr.* 392, fig. 113. 1907.

Missouri Gooseberry.— Shrub, 1–2 m high, young canes sometimes bristly, young twigs with a grayish white bark; nodal spines 1–3, subulate, straight, 9–15 mm long. Leaves from a reniform, truncate, or roundish cuneate base, suborbicular, 3- to 5-lobed, lobes broad, obtuse or roundish, crenate dentate, glabrous or sparingly puberulous above, pubescent beneath, 2–6 cm wide; petioles pubescent, mostly shorter than the blade. Peduncles slender, filiform, longer than the petioles, 2- to 3-flowered, glabrous or puberulous; bracts ovate-pointed, glabrous or puberulous, ciliate, 1.5–2.5 mm long; pedicels 5–9 mm long, drooping. Ovary small, roundish pyriform, glabrous; receptacle campanulate, 2.5 mm long, greenish, glabrous, or sparingly pubescent; sepals linear-oblong, obtuse, 6–7 mm long, greenish white, smooth or almost so; petals ⅓ as long, erose, white; stamens much exserted, about twice as long as the sepals, glabrous, anthers roundish, almost 1 mm long; style longer than the stamens, deeply bifid, pubescent near the base. Berry globose, purplish, glabrous, subacid.

Central North America; in the great plains from Tennessee, Illinois, to Minnesota, and South Dakota to Kansas and Missouri.

G. van-fleetiana Berger *N. Y. Sta. Tech. Bul.* **109**:93. 1925. (*G. missouriensis* x *reclinata*).

Bushy, erect shrub, with stout shoots; nodal spines stout, straight, single, or ternate. Leaves with a truncate or roundish or wedge-shaped base, broader than long, roundish, 3-lobed, lobes short, obtuse, crenate, finely pubescent on both sides when young, glabrous

when old; petioles pubescent, with some long hairy or glandular fringes near the base. Peduncles as long or shorter than the petioles, glabrous or puberulous, 1- to 2-flowered; bracts roundish, glandular-ciliate, pedicels glabrous or hairy at the end. Ovary oblong or pyriform, varying on the same branch from glabrous to densely pubescent. Receptacle campanulate, about 4 mm. long and wide, green and pubescent, densely hairy inside; sepals linear-oblong, obtuse, spreading or reflexed, 6–7 mm long, pubescent outside, green, purplish along the margins, from greenish red to pretty red inside; petals spatulate, white, erect, ⅓ as long as the sepals; stamens exceeding the sepals, filaments filiform, straight, connivent, white, glabrous, anthers oblong, green; style finally exceeding them, split almost half way, green, hairy below. Berry roundish elliptic, dark reddish purple, smooth, thin skinned, good quality.

Originated by Dr. Van Fleet and distributed by the United States Department of Agriculture in Washington; cultivated at this Station. It holds its foliage late in the fall and is said to be promising for southern regions. The flowers resemble those of *R. succirubrum* (*G. nivea* x *divaricata*). It must not be confused with the gooseberry variety Van Fleet, introduced by T. G. Lovett in 1917 which was also raised by Dr. Van Fleet, but from Houghton x (Keepsake x Industry) F_2 generation.

Grossularia divaricata Dougl. Coville & Britton *N. Am. Fl.* **22**:224. 1908; Berger *N. Y. Sta. Tech. Bul.* **109**:96. 1925.

Ribes divaricatum Dougl. *Trans. Hort. Soc. London* **7**:515. 1830; Loudon *Arb.* **2**:970. 1844; Card *Bush-Fr.* 457. 1898; Heller *Muhlenbergia* **1**:98. 1904; Schneider *Ill. Hdb. Laubh.* **1**:415. 1905; *Ibid.* **2**:950. 1912; Janczewski *Monogr.* 390, fig. 112. 1907; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2961. 1916; Bean *Trees & Shrubs* 402. 1921.

Ribes villosum Nutt. Torrey & Gray *Fl. N. Am.* **1**:547. 1840; not Roxburgh, 1824.

Ribes tomentosum. Koch *Wochenschrift f. Gärtn. & Pfl.* **2**:138. 1859.

Ribes Suksdorfii. Heller *Muhlenbergia* **3**:11. 1907.

A vigorously growing, bushy shrub, with arching branches, up to 3 m high; young shoots sometimes bristly, but mostly not so, gray or brown; nodal spines variable, sometimes none or 1, 2, 3, or more, generally stout, sometimes very stout and conical and over 2 cm long, brown, straight, or recurved. Leaves suborbicular, 2–6 cm wide, 5-lobed or sometimes 3-lobed, cordate, reniform, truncate or roundish at the base, thin, the lobes blunt, coarsely crenate-dentate, finely pubescent on both sides, chiefly on the veins beneath, sometimes glabrous; petiole slender, pubescent, generally shorter than the blade. Peduncles slender, drooping, about as long as the petioles, 2- to 4-flowered, glabrous; bracts small, ovate, glabrous, or ciliate; pedicels filiform, glabrous. Ovary roundish, glabrous; receptacle campanulate, 2–3 mm long, greenish purplish, usually glabrous; sepals oblong, obtuse, purplish or greenish and purplish at the base, 2–3 times as long as the receptacle, recurved; petals obovate to almost fan-shaped, white or purplish, less than half as long as the sepals; stamens as long or longer than the sepals, anthers small, roundish; style deeply divided,

villous-pubescent with long white hairs at the base. Berry small, globular, dark purple or black, smooth, about 1 cm across, agreeable.

Western North America; from middle California to British Columbia. Subspontaneous in some parts of Europe. A variable species. *G. divaricata* was crossed with *G. downingiana* (cultivated variety Josselyn) by Mr. G. Fraser in Ucluelet, British Columbia. The cross resulted in a productive gooseberry with rather large roundish fruits. (See *Gard. Chron.* 3rd Ser. **75**:364, fig. 159. 1924.)

Grossularia hirtella Michx. Spach *Hist. Veg.* **6**:180. 1838; Coville & Britton *N. Am. Fl.* **22**:225. 1908; Berger *N. Y. Sta. Tech. Bul.* **109**:102. 1925.

Ribes hirtellum. Michaux *Fl. Bor. Am.* **1**:111. 1803; Loudon *Arb.* **2**:971. 1844. Rehder in Bailey *Stand. Cyc. Hort.* **5**:2961. 1916; Bean *Trees & Shrubs* **2**:402. 1921.

Ribes saxosum. Hooker *Fl. Bor. Am.* **1**:231. 1832; Heller *Muhlenbergia* **1**:100. 1904.

Ribes oxyacanthoides. Hooker *Bot. Mag.* Pl. 6892. 1886; Britton & Brown *Ill. Fl.* **2**:189, fig. 1868. 1897; Card *Bush-Fr.* 462, fig. 92. 1898. Not Linnaeus, 1753.

Ribes oxyacanthoides saxosum. Coville *Contr. U. S. Nat. Herb.* **4**:100. 1893; Gray *New Man.* 7th Ed. 451. 1911.

Ribes oxyacanthoides calcicola. Fernald *Rhodora* **7**:155. 1905; Gray *New Man.* 7th Ed. 451. 1911.

Ribes huronense. Rydberg *Britt. Man.* 487. 1901.

Ribes gracile. Janczewski *Monogr.* 388, fig. 111. 1907. Not *R. gracile* Michaux, nor Pursh.

Northern Gooseberry, Smooth Gooseberry.— Bushy shrub of rather spreading habit, 0.6–1.2 m high; branches slender, sometimes bristly at the base of vigorous shoots; old branches dark brown, young shoots gray, glabrous; nodal spines subulate, 10–12 mm long, but usually wanting. Leaves ovate or obovate, and usually with a decidedly cuneate base, especially on young cions but leaves of the short lateral shoots more reniform or orbicular and with a subcordate base, sharply 3- to 5-lobed, lobes acute, the lower ones indistinct, coarsely incisely crenate, 2–6 cm wide, glabrous or with scattered hairs on both sides, paler beneath; petioles slender, sometimes as long as the blades, pubescent, and some with several plumose fringes. Peduncles shorter than the petioles, filiform, glabrous, 2- to 4-flowered; bracts small, ovoid, acute, glabrous or ciliate; pedicels 4–6 mm long, filiform, exceeding the bracts. Ovary glabrous, pyriform; perianth 6–7 mm long, glabrous, greenish; receptacle campanulate; sepals slightly longer than the receptacle, lanceolate-ligulate, green or purplish, petals half as long or shorter, white or with pink nervation at the base, obovate; stamens almost as long as the sepals or slightly longer, anthers small, roundish oblong; style deeply split, villous at the base. Berry purple or black, globose, 8–10 mm across or more, smooth or rarely with stalked glands, edible.

Eastern to central North America; Newfoundland to Pennsylvania and West Virginia and to South Dakota and Manitoba in the West. A

very variable species, usually confounded with *G. oxyacanthoides* and *G. inermis*, easily recognized from both by the characteristic cuneate leaf bases. This species has been much employed by hybridizers to produce American varieties of gooseberries. The variety Pale Red (American Seedling, Cluster, or Ohio Seedling) is, according to Hedrick *Cyclopedia of Hardy Fruits*, 309. 1922, a pure-bred of this species.

(1) var. **calcicola** Fernald (l. c.).

Differs chiefly by densely pubescent leaves and bracts and purplish pubescent flowers and ovaries.

It is found in marly swamps and on limestone rocks from Michigan to New England and Quebec.

G. downingiana Berger (*G. hirtella* x *reclinata.*)

Shrub with slender arching branches, older ones with cherry-like brown bark, younger ones gray, usually without bristles; nodal spines 3 or 1, subulate, 5–10 mm long. Leaves variable in shape, some roundish and with a broad truncate or also subcordate base, others obovate with a decidedly wedge-shaped base; 3- to 5-lobed, lobes obtuse, crenate, of rather thin texture, glabrous above, paler and slightly pubescent or glabrous at length underneath. Petiole pubescent and with scattered plumose, sometimes glandular, fringes. Peduncles shorter than the petioles, glabrous, 2- to 3-flowered; bracts roundish, pubescent, and fimbriate. Ovary small, pear-shaped, glabrous; receptacle bell-shaped, bright or pale green, inside with numerous long white hairs near the throat, sepals a little longer, oblong, obtuse, recurved, green or slightly tinged with red inside at the base and along the margins, smooth or with a few scattered hairs at the back; petals about half as long, obovate-cuneate, with a revolute margin at the top, white; stamens white, as long as the sepals, anthers oblong, greenish; style deeply bifid, villous at the base. Berries roundish oval, green or dark red, glabrous with a thin skin, agreeable; seeds small, numerous.

This hybrid originated in cultivation in the United States. To this belong most of the American gooseberry varieties, like Downing, Carrie, Oregon, Pearl, Poorman, Josselyn, Smith, Van Fleet, etc.

G. rustica Jancz. Berger (*G. reclinata uva-crispa* x *hirtella.*)

Ribes rusticum. Janczewski *Bul. Ac. Sci. Nat. Crac.* 3:286. 1906; Janczewski *Monogr.* 495. 1907.

Shrub with erect, rather stout, grayish branches; nodal spines 1–3, subulate; growing shoots downy. Leaves broader than long, roundish with a broadly truncate or subcordate, rarely somewhat wedge-shaped base, 3- to 5-lobed, lobes obtuse dentate, rather soft and thin, shortly and sparingly puberulous above at first, paler and densely pubescent beneath, glabrescent later on. Petioles hirsute and with scattered plumose fringes. Peduncles shorter than the petioles, hirsute, 2- to 3-flowered; bracts roundish, hirsute, and ciliate, pedicels pubescent. Ovary small, pyriform, more or less tomentose; receptacle bell-shaped, hairy inside, green, like the sepals more or less pubescent; sepals oblong, obtuse, reflexed, a little longer than the receptacle, more or less tinged with red along the margins and at the

base; petals half as long, obovate-cuneate slightly revolute at the top, white or faintly tinged with red, sometimes with a few hairs at the back; stamens white, as long as the sepals, anthers greenish yellow, oblong. Berry roundish oval, dark red, pubescent or glabrous with a thin skin; seeds small, numerous.

Janczewski founded this hybrid on the variety Pale Red. A variety which originated in 1833 in the nursery of Abel Houghton, Lynn, Massachusetts, also belongs here. It is known as the Houghton gooseberry. This hybrid comes very near *G. downingiana*. Of course there may be forms intermediate between this and *G. downingiana*.

Grossularia oxyacanthoides Linn. Miller *Gard. Dict.* 8th Ed. No. 4. 1768; Coville & Britton *N. Am. Fl.* **22**:223. 1908; Berger *N. Y. Sta. Tech. Bul.* **109**:106. 1925.

Ribes oxyacanthoides. Linnaeus *Sp. Pl.* 201. 1753; Loudon *Arb.* **2**:968, fig. 715. 1844; Rehder in Bailey *Stand. Cyc. Hort.* **5**:2961. 1916; Bean *Trees & Shrubs* **2**:402. 1921.

Hawthorn-leaved Gooseberry.— Low shrub of spreading or reclining habit, young branches pubescent, glabrous later on, grayish, mostly very bristly; nodal spines 3 or more, straight, subulate, 1 cm long. Dry bud-scales bearded with a white tomentose margin. Leaves suborbicular, usually broader than long, slightly cordate or truncate or broadly cuneate at the base, rather deeply 5-lobed, lobes obtuse, dentate, on both sides slightly pubescent or nearly glabrous, 2–4 cm wide; petioles shorter than the blades, pubescent and sometimes with a few glandular hairs and scattered plumose fringes. Peduncles very short, scarcely longer than the bud-scales, 1- to 2-flowered; pedicels short, glabrous, bracts small, often glandular-ciliate. Ovary roundish, smooth, and glabrous; receptacle campanulate, greenish white, glabrous, 2.5–3.5 mm long; sepals oblong, obtuse, spreading or reflexed, usually slightly exceeding the receptacle, whitish; petals about 2 mm long or $\frac{2}{3}$ as long as the sepals or more, obovate, obtuse, white; stamens as long as the petals, anthers oblong, scarcely 1 mm long; style bifid, hairy. Berry globose, smooth, 10–13 mm across, purple, slightly bloomy, sweet and good flavored.

North America; from Newfoundland and the Hudson Bay to British Columbia and the Yukon, south to North Dakota and northern Michigan. This species is usually confused with *G. irrigua*, *G. hirtella*, and *G. setosa*. The latter has, however, brown shoots, longer peduncles and longer, cylindric-campanulate calyx-tubes; *G. hirtella* has the stamens twice as long as the petals and as long or longer than the sepals and mostly cuneate leaves; *G. irrigua* is less bristly, the peduncles well exserted from the bud-scales and the perianth is a little larger, about 8–10 mm. long.

Grossularia reclinata Linn. Miller *Gard. Dict.* 8th Ed. No. 1. 1768; Coville & Britton *N. Am. Fl.* **22**:223. 1908; Berger *N. Y. Sta. Tech. Bul.* **109**:108. 1925.

Ribes reclinatum. Linnaeus *Sp. Pl.* 201. 1753.

Ribes grossularia. *Ibid.* 201. 1753; Loudon *Arb.* 2:972. 1844; Card *Bush-Fr.* 463. 1898; Schneider *Ill. Hdb. Laubh.* 1:413. 1905; *Ibid.* 2:950. 1912; Janczewski *Monogr.* 384, fig. 109. 1907; Gray *New Man.* 7th Ed. 451. 1911; Rehder in Bailey *Stand. Cyc. Hort.* 5:2961. 1916; Bean *Trees & Shrubs* 2:402. 1921.

Ribes caucasicum. Roemer & Schultes *Syst. Veg.* 5:507. 1819.

Grossularia vulgaris. Spach *Hist. Veg.* 6:174. 1838.

Ribes grossularia vulgare Spach. Janczewski *Monogr.* 385. 1907.

Ribes grossularia var. *atlantica.* Ball *Spicil. Fl. Maroc.* 449. 1878.

European Gooseberry.— Spreading shrub, 1–1.5 m high, with ascending or arching branches, young shoots subpubescent or subglabrous, often bristly; nodal spines usually 3, rarely more or single, straight, 1–1.5 cm long. Leaves suborbicular, cordate or broadly cuneate at the base, 3- to 5-lobed, lobes obtuse, crenate-dentate, of rather firm texture, with somewhat revolute margins, glabrous or pubescent, shining green, paler beneath, 2–6 cm wide; petioles shorter than the blades, pubescent and sometimes glandular, with some plumose fringes. Peduncle 1- to 2-, rarely 3-flowered, very short, pubescent or tomentose and with stalked glands; bracts thin, 1–2 mm long, ovoid or roundish, thin, pubescent, ciliate, or glandular-ciliate, shorter than the glandular-pubescent pedicels. Ovary roundish pyriform, pubescent or glabrous, with more or less numerous, stalked glands; receptacle broadly campanulate or almost hemispherical, greenish or reddish, pubescent also inside in the upper half; sepals more or less tinged with red brown, 3–4 mm long, about equaling the receptacle, obovate, ligulate or obovate oblong, reflexed, pubescent; petals obovate, whitish, almost as long as or shorter than the stamens; style split halfway, pubescent below. Berry globose to oval, green or yellowish to red, pubescent and glandular-bristly, or smooth.

North Africa; Atlas Mountains; *Europe;* Spain to the Caucasus and to Scandinavia. A very variable species; the forms with more or less glabrous leaves, ovaries, calyx, and fruits have been considered to represent Linnaeus' *R. reclinatum* (*R. grossularia* var. *reclinatum* Berl.,— *R. grossularia* var. *glabrum* W. Koch). The forms with more or less glandular, hairy ovaries were distinguished as *R. grossularia* var. *glandulososetosum* W. Koch.

(1) var. **uva-crispa** Linn.

Ribes uva-crispa. Linnaeus *Sp. Pl.* 201. 1753; Britton & Brown *Ill. Fl.* 2:189, fig. 1870. 1897.

R. grossularia var. *uva-crispa* Linn. Janczewski *Monogr.* 386. 1907.

R. grossularia var. *pubescens.* Koch *Syn. Fl. Germ.* 265. 1837.

Grossularia uva-crispa. Miller *Gard. Dict.* 8th Ed. No. 3. 1768.

Low shrub, young shoots subpubescent, bristles rarer or wanting and internodes shorter; leaves smaller, pubescent, dull green not shining green; peduncle tomentose; ovary tomentose with a few or without glandular hairs; petals more or less hairy on the back. Berries small, yellowish, pubescent, very sweet.

Central Europe to Scandinavia; on rocks and in dry places. It starts to grow about a fortnight later than the species.

The cultivated varieties of gooseberries as they are grown in Europe, and chiefly in England, are all descendants of *Grossularia reclinata* and its varieties. It is chiefly from the typical form of this species with shining leaves and glandular-hairy ovary that most of the cultivated varieties derive. From the variety *G. reclinata uva-crispa* with dull green pubescent leaves and pubescent, rarely glandular ovary, only a few horticultural varieties are cultivated, but as they are smaller than the others they are not much planted and are likely to be lost. *G. reclinata uva-crispa* is, however, a more drouth-resisting plant and, although its fruits are smaller, yet they are very sweet and ripen later than the others, all valuable qualities for the plant breeder.

CHAPTER X

VARIETIES OF RED AND WHITE CURRANTS

Admirable. 1. *Can. Cent. Exp. Farm Bul.* 56:11. 1907.

Resembles Fay. Plants moderately vigorous, unproductive.

Angers. 1. *Am. Pom. Soc. Cat.* 24. 1883.

Fertile d'Angers. 2. *Gen. Farmer* 22:27. 1861.

This variety, of unknown origin, dates back for three-quarters of a century. The American Pomological Society held this variety in the list of recommended fruits from 1860 to 1893. Plants very productive; bunches of medium size; berries large, bright red; good.

Attractor. 1. *Horticulturist* 9:11. 1854.

This variety originated in France. It was placed in the fruit catalog of the American Pomological Society in 1862; removed nine years later. Plants moderately vigorous, spreading, productive; foliage deeply lobed, sharply and deeply serrated; fruit of medium size, yellowish white; bunches short, medium in size.

Bar le Duc. 1. *Fest. Pom. Inst. Reut.* 34. 1911. 2. Bunyard *Cat.* 27. 1923.

A valuable variety much grown at Bar-le-Duc, Meuse, France, for preservation, and the making of a most delicious jelly. Plants vigorous; fruit large, white, translucent with but few seeds; sweet.

Belle de Fontenay. 1. *Rural N. Y.* 10:255. 1859.

Once grown in France and used by French horticulturists in the breeding of currants. Fruit large, red; good.

Benwell. 1. *Can. Cent. Exp. Farm Bul.* 56:11. 1907.

Plants moderately vigorous, productive; bunches of medium size, loose; berries small, bright scarlet, very acid; quality fair; midseason.

Blanche de Verriéres. 1. *Guide Prat.* 23. 1895.

Verriéres White. 2. *Can. Cent. Exp. Farm Bul.* 56:14. 1907.

Plants vigorous, upright, moderately productive; fruit medium in size, in long, well-filled clusters; skin pale yellow; flesh juicy, sprightly subacid; good.

Boston Lady. 1. *Gard. Mon.* 2:250. 1860.

Plants vigorous, very productive; fruit very large, white; flesh richly flavored, sweet; good; late.

Brayley. 1. Ont. Dept. Agr. *Fr. Ont.* 265. 1914.

Brayley's Seedling. 2. *Ont. Fr. Exp. Sta. Rpt.* 116. 1904.

Origin unknown. Plants upright, spreading, vigorous, healthy, hardy, not very productive; bunches long, straggling, loose; berries of medium size, dark red, sprightly acid; midseason.

Buist Long-bunched. 1. Fuller *Sm. Fr. Cult.* 204. 1867.

Supposed to be a seedling of Red Dutch which was originated by Robert Buist, Philadelphia, Pennsylvania. Plants vigorous, upright, productive; fruit large, deep red; bunches long, tapering, similar to Red Dutch in flavor and color.

Cancasische. 1. Dochnahl *Führ. Obstkunde* 4:182. 1860. 2. *Gard. Chron.* 3rd Ser. 62:217. 1917.

Origin unknown. Plants vigorous, unproductive; bunches medium; berries medium in size, red, mildly subacid; midseason.

Caywood Seedling. 1. *N. Y. Sta. Bul.* 95:427, Pl. IV, fig. 14. 1895.

Received at this Station from A. J. Caywood & Son, Marlboro, New York, in 1888. Plants spreading or drooping, very productive; bunches of medium size; berries large, pale greenish yellow, transparent; good; more acid than White Grape.

Champagne. 1. Mawe-Abercrombie *Univ. Gard. Bot.* 1778. 2. Fuller *Sm. Fr. Cult.* 204. 1867.

Groseillier à Gros Fruit. 3. *Am. Pom. Soc. Cat.* 94. 1862.

Coleur de Chair. 4. Duhamel *Trait. Arb. Fr.* 1:267. 1768.

This old variety is probably a cross between the common red and the common white currants. The wood and foliage are very similar to that of the common red. The American Pomological Society included the variety in its fruit catalog from 1862 to 1871. Plants vigorous, productive; bunches medium in length, loose; berries large, pale pink, rather acid; late. Esteemed in France for making jelly.

Champagne White. 1. *Can. Cent. Exp. Farm Bul.* 56:14. 1907.

Plants vigorous, upright, moderately productive; bunches medium to long, half-filled; berries medium to large, pale yellow, subacid, with a pleasant flavor; good; midseason.

Champion. 1. *N. Y. Sta. Bul.* 95:427. 1895.

As grown at this Station the plants are upright, vigorous; bunches of medium length; berries variable, small to large, a shade lighter in color than White Dutch, flavor mild; inferior to White Dutch.

Chautauqua. 1. *W. N. Y. Hort. Soc. Rpt.* 26. 1904. 2. *N. Y. Sta. Bul.* 385:311. 1914. 3. *Ohio Sta. Bul.* 371:327. 1923.

Chautauqua Climbing. 4. *Rural N. Y.* 61:848. 1902.

The long growth of the canes of this variety can be trained against a wall or trellis until they reach a height of ten or twelve feet. This character accounts for the synonym, Chautauqua Climbing. The variety is among the best in a collection of forty sorts on the grounds of this Station. The plants are vigorous, healthy and very productive. The clusters are unusually long, with stems free from berries at the base, and therefore easy to pick. The berries are large, handsome, light red, high in quality, and hang long after ripening. All in all, however, chiefly because of the unmanageable canes, the variety cannot be recommended for commercial plantations, but may be desirable for trellises or fences in home gardens. This currant is a chance seedling found in the woods by R. F. Lonnen, Mayville, New York, about 1893. The variety was introduced by the Curtice Nursery Company, Portland, New York, about 1901.

CHAUTAUQUA

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Plants large, vigorous, upright-spreading, dense, very productive, healthy; young shoots rather few, stocky, dark brown overlaid with dull gray; leaf-buds characteristically very small, short, pointed, lean, appressed, glabrous; leaves cordate to subcordate at the base, with obtuse lobes, thin, dark green, dull, rugose, glabrous, with crenate margins; petiole medium in length and thickness, pubescent, greenish. Flowers early, in long, drooping, many-flowered racemes; calyx-tube green, saucer-shaped, glabrous; calyx-lobes sometimes overlapping, yellowish green; ring of medium size, well developed, fleshy; ovary glabrous. Fruit midseason, easily picked; clusters long, loose, with 15–24 berries; cluster-stems and berry-stems long, slender; berries adhere well after ripening, medium to large, roundish or slightly oblate, attractive, light, bright red; skin smooth, thin, tough, translucent; flesh moderately juicy, sprightly to tart; quality very good.

Chenonceau. 1. *Guide Prat.* 22. 1895. 2. *Gard. Chron.* 3rd Ser. **62**:217. 1917.

A distinct form of the Versailles type, having shorter bunches and ripening later. Of little merit.

Cherry. 1. *Mag. Hort.* **21**:425, fig. 19. 1855. 2. Hogg *Fruit Man.* 318. 1884. 3. *Ohio Sta. Bul.* **371**:328, 365. 1923.

Cerise. 4. *Horticulturist* **1**:439. 1846–47.

Macrocarpa. 5. *Mag. Hort.* **25**:32. 1859.

Groseille Cerise. 6. *Pom. France.* **8**:No. 1, Pl. 1. 1873.

Perhaps this is the most popular currant for home and market use in America. It is esteemed for its large bunches and berries, and its vigorous, healthy plants. Cherry is generally considered the most productive of the large-fruited red currants. The berries, as the color plate shows, are beautiful bright red, of largest size, which, however, is not always uniform. The fruits are juicy and of excellent quality, from which the large seeds detract a little. In many localities the plants do not sucker freely, so that the bushes sometimes have too few stalks. There is, also, a tendency in the canes to "go blind," that is, to lack the terminal shoot. Harvesting is made a little difficult by the short-stemmed bunches, the berries of which are so close to the wood that the crop is hard to pick. The plants are so vigorous and so luxuriant in foliage that they might well be planted as ornamentals. This variety seems to have originated in Italy and was introduced into France about 1840, and because of the extraordinary size of the fruit was named Cherry. It was introduced into Flushing, New York, by Dr. William W. Valk in 1846. Cherry was added to the recommended fruit list of the American Pomological Society in 1862.

Plants medium to large, vigorous, upright when young becoming more spreading with age, dense, usually productive, healthy; young shoots few, very stocky, with a tendency to imperfect buds at or near the ends of the shoots especially on bearing plants; leaf-buds rather small, short, pointed, lean, appressed, glabrous; leaves deeply cordate at the base, with obtuse lobes, medium in thickness and color, dull, rugose, with crenate margins; petiole medium in length and thickness, pubescent, greenish. Flowers early, in medium to long, drooping, rather few-flowered racemes; calyx-tube green mingled with red, saucer-shaped, glabrous; calyx-lobes overlapping, pale green with slight red; ring well developed, fleshy, distinctly brownish. Fruit early; clusters small, short, loose, with 10–13

berries, drooping; cluster-stems short making the fruit difficult to pick, thick; berry-stems medium to rather long, slender; berries cling well only for a comparatively short time, very large, not very uniform, round, bright but dark red; skin thin, smooth, tough, translucent; flesh very juicy, firm, acid or mildly subacid, pleasantly flavored; quality good.

Chiswick Red. 1. Wright *Fr. Gr. Guide* **3**:157. 1892. 2. *Gard. Chron.* 3rd Ser. **62**:232. 1917.

Origin unknown. Plants vigorous, upright, productive; bunches medium in size; berries small, pale red, acid; early.

Climax White. 1. *Can. Cent. Exp. Farm Bul.* **56**:14. 1907.

Originated by William Saunders, Ottawa, Canada. Plants vigorous, upright, productive; bunches medium, one-half filled; berries medium to large, pale yellow; briskly subacid; good; midseason.

Comet. 1. *Gard. Chron.* 3rd Ser. **20**:137, fig. 26. 1896. 2. *Am. Pom. Soc. Sp. Rpt.* 82. 1904–05. 3. *Rural N. Y.* **64**:650. 1905.

Comet originated on one of the Channel Islands, probably Guernsey, and was introduced about 1896. It was brought to the United States about 1900. The variety has been thought by some writers to be identical with Versailles, and by others, identical with Fay. Plant a strong grower with thick, leathery, dark green foliage; bunches large, compact, with long stems; berries large, bright, deep red, seedy; of good quality.

Connecticut Sweet. 1. *Country Gent.* **21**:305. 1863.

Found many years ago in an old garden in Bethany, Connecticut. Berries large; flesh melting, juicy, sweet; early.

Cumberland Red. 1. *Can. Cent. Exp. Farm Bul.* **56**:11. 1907. 2. *Am. Pom. Soc. Rpt.* 287. 1921.

Originated by C. L. Stevens, Orillia, Ontario. Plants vigorous, spreading, productive; bunches medium in size and length; berries medium in size, bright scarlet, acid; fair; midseason.

Cut-leaved. 1. *Gard. Chron.* N. S. **5**:528. 1876.

Plants slender, spreading, unproductive; bunches medium in size; berries small, pale red; poor; cultivated only as an ornamental.

Dana White. 1. *Country Gent.* **22**:255. 1863.

This variety originated in Massachusetts nearly three-quarters of a century ago. It is supposed to be a seedling of White Grape. Plants vigorous and stocky; fruit large and of good quality, resembling White Grape in all characters.

De la Rochepoze. 1. *Guide Prat.* 23. 1895. 2. *Can. Cent. Exp. Farm Bul.* **56**:11. 1907. 3. *Ohio Sta. Bul.* **371**:354. 1923.

Originated in France about 60 years ago. Plants upright, vigorous, unproductive; bunches medium to long, half-filled; berries of medium size, pale pinkish white; very acid; quality poor.

Diploma. 1. *U. S. D. A. Yearbook* 378, Pl. 32. 1909. 2. *N. Y. Sta. Bul.* **364**:192. 1913. 3. Card *Bush-Fr.* 305, Pl. XI. 1917. 4. *Ohio Sta. Bul.* **371**:331, 375. 1923.

CHERRY

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DIPLOMA

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Long grown very commonly in New York, Diploma is now becoming a favorite in other currant regions as well. The berries are as large as those of the Cherry, considered to bear the largest fruits of any currant, globular, bright rich crimson, and so transparent that the seeds show plainly. The flesh is tender, abundantly juicy, slightly subacid; the quality is good to very good. The variety may be distinguished by its transparent skin and flesh. The fruits are so juicy that they are especially desirable for jellies; for the same reason the crop must be picked and handled with care. The plants are satisfactory in every character. Diploma was originated by Jacob Moore, Attica, New York, in 1885, as a seedling of Cherry crossed with White Grape. Charles A. Green, Rochester, New York, secured control of the stock and introduced it in 1906.

Plants medium to large, vigorous, upright later becoming quite spreading, not very dense, productive, healthy; young shoots numerous, stocky, rather brittle, reddish brown, somewhat glossy; leaf-buds large, pointed, plump, pubescent, free; leaves subcordate to truncate at the base, with obtuse lobes, medium in thickness, size, and color, dull, rugose, glabrous, with crenate margins; petiole medium in length and thickness, greenish, pubescent. Flowers midseason, in rather dense, drooping, few- to medium-flowered racemes; calyx-tube greenish, saucer-shaped, glabrous; calyx-lobes obtuse, separated, glabrous, pale green tinged brown beneath; petals much contracted at the base; ring well developed, fleshy; ovary glabrous. Fruit midseason, period of ripening short; clusters medium in length, filled poorly at the tips, loose, with rather few berries to the cluster; cluster-stems average long and slender but variable; berry-stems medium to long; berries large, round, bright but light red which changes but slowly after picking; skin smooth, thin, tender, very transparent, the segments, veins and seeds unusually distinct; flesh semi-transparent, tender, very juicy, sprightly subacid becoming mild; quality good to very good.

Dr. Brete. 1. *Am. Agric.* **28**:458, fig. 1869.

Originated in France many years ago and imported to America about 1865 by a William S. Carpenter. Plants very productive; bunches long, bearing fruit of largest size and excellent quality.

Early Scarlet. 1. *Can. Cent. Exp. Farm Bul.* **56**:11. 1907.

Originated by William Saunders, Ottawa, Canada. Plants moderately vigorous, not very productive; bunches medium in length; berries medium in size, red, mild, but pleasantly acid; good; early.

Eclipse. 1. *N. Y. Sta. Bul.* **95**:419, Pl. 1, fig. 2. 1895.

This variety was received for testing at this Station from H. S. Anderson, Union Springs, New York, in 1892. The plants proved to be vigorous, upright, productive; bunches large; berries variable, small to large; skin thick, red; flesh tender, subacid; good; ripens unevenly.

Empire. 1. *Rural N. Y.* **57**:123. 1898.

Origin unknown. Plants not hardy, productive; bunches small, with few fruits; berries large, dark red; good.

Everybody. 1. Lovett *Cat.* 8, fig. 1914.

Introduced about eleven years ago by J. T. Lovett, Little Silver, New Jersey. As grown at this Station the plants are moderately vigorous, productive; clusters variable, medium to short, well filled or with but few berries, which are large, dark red, subacid and good in quality; midseason.

Eyatt Nova. 1. *Can. Cent. Exp. Farm Bul.* **56**:14. 1907.

Of ancient origin. Plants moderately vigorous, upright, moderately productive; bunches large, long, well filled; berries large, pale yellowish white, acid; fair; midseason.

Fay. 1. *Cult. & Count. Gent.* **45**:440, 470. 1880. 2. *N. Y. Sta. Bul.* **95**:419, fig. 4. 1895. 3. *Ohio Sta. Bul.* **371**:331, 367. 1923.

Fay's Prolific. 4. *Rural N. Y.* **42**:520. 1883.

Somewhat similar to Cherry and Diploma, just described, Fay is probably a better sort the state over than either of these two, and by many is rated as the best of all the large-fruited currants. Both the clusters and berries are very large and very uniform, making the product very attractive. The cluster-stems are long, and therefore harvesting is easy. The berries are of darker red, as the color plate shows, than many other of the red currants, are sprightly, juicy, and thin-skinned, so that the fruits of this sort are about the best of all for canning and jellies. The plants are not large, and the yield is not so heavy as with some other varieties, so that unproductiveness is the chief defect. In some localities the plants are subject to more of the ills of the currant than other standard varieties. Yet, with these defects it is and probably will long remain one of the leading commercial currants. Fay is a seedling produced about 1868 by Lincoln Fay, Portland, New York. It is thought to be a cross between Victoria and Cherry. The variety was introduced by George S. Josselyn, Fredonia, New York, in 1880. The American Pomological Society added the sort to its list of recommended fruits in 1883 under the name Fay's Prolific but in 1889 the name was shortened to Fay.

Plants of medium size and productiveness, susceptible to anthracnose, vigorous, sprawling in habit; young shoots numerous, stocky, break easily; leaf-buds small, short, pointed, lean, slightly pubescent, appressed; leaves rather large, cordate at the base, with broadly obtuse lobes, thick, dull, rugose, glabrous, with crenate margins; petiole of medium length, thick, greenish, pubescent. Flowers early, open before the leaves are well out, in long, loose, drooping clusters; calyx-tube greenish brown, saucer-shaped, glabrous; calyx-lobes obtuse, thin, greenish yellow; ring very distinct, fleshy, red or brownish red; ovary glabrous. Fruit early midseason; clusters large, medium to long, loose, with 12–15 berries, drooping; cluster-stems variable in length averaging long; berry-stems medium to long; berries cling well, large, smaller at the ends of the clusters, roundish, glossy, dark red; skin smooth, thin, tough, translucent; flesh firm, juicy, very sprightly becoming pleasantly subacid; quality very good.

Filler. 1. *Rural N. Y.* **57**:514. 1898. 2. *Mich. Sta. Bul.* **206**:59. 1903. 3. *Ohio Sta. Bul.* **371**:332, 368. 1923.

Introduced in the Hudson River Valley some years ago, Filler is now long past the probationary period, and has found favor only in the neighborhood of its introduction, and

FAY

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even there is now being grown less than formerly. The plants are not productive, and the fruits are neither attractive in appearance nor high in quality. The plants sprawl on the ground with great detriment to the currants and to the vexation of the cultivator. Perhaps the variety fails because of its being unmanageable in the plantation more than for any other reason. Filler originated in the garden of George Filler, Milton, New York, about 1892.

Plants dwarfish, medium in vigor, upright-spreading becoming drooping with age, variable in yield, healthy; young shoots medium in number; leaf-buds small, short, pointed, nearly glabrous, appressed; leaves small to medium, cordate at the base, with obtuse lobes, rugose, glabrous, with crenate margins; petiole variable in length and thickness, very slightly pubescent. Flowers midseason, above medium in size, in few-flowered, drooping racemes, variable in compactness; calyx-tube greenish, saucer-shaped, glabrous; calyx-lobes separated or occasionally overlapping, obtuse, pale green with few red streaks; ring greenish, well developed; ovary glabrous. Fruit midseason; clusters medium in length, compact, 11–17 berries, drooping; cluster-stems of average length and thickness; berry-stems long, slender; berries cling well, roundish or somewhat oblate, medium to large, variable in size, glossy, dark red; skin smooth, thin, tender, translucent; flesh firm, moderately juicy, sprightly; quality good.

Franco-German. 1. *Ill. Hort. Soc. Rpt.* 158. 1898. 2. Roesch *Cat.* 8. 1898.

It is said by the introducer, Lewis Roesch, Fredonia, New York, that this variety was originated by Lincoln Fay, Portland, New York, from seed of Fay, about 1871. Mr. Fay stated that he gave his seedling the name it bears because it originated during the Franco-German war. Some writers are of the opinion that the variety is identical with Holland. On the grounds of this Station, however, the plants have proved identical with Prince Albert as other horticulturists have also discovered.

Giant Red. 1. Crawford *Cat.* 1913. 2. *Wis. Hort. Soc. Rpt.* 128. 1913.

Originated from seed by E. P. Powell, Clinton, New York, and introduced in 1912 by the M. Crawford Company, Cuyahoga Falls, Ohio. As grown at this Station the plants are moderately vigorous, upright-spreading, dwarfish, productive; clusters short, well filled; berries large, glossy red, with juicy flesh, sprightly subacid; good; midseason.

Gloire de Sablons. 1. *Mag. Hort.* **24**:375. 1858. 2. *N. Y. Sta. Bul.* **95**:419. 1895.

This is an inferior variety of the common red currant. As grown at this Station the plants are upright, vigorous, moderately productive; bunches short, small; berries small, white, striped with red, acid; poor.

Gloucester Red. 1. Tilton *Jour. Hort.* **9**:188. 1871.

Plants low, stocky; bunches short; berries large, dark red, mild subacid; good.

Goegginger Pear-shaped Red. 1. *Gard. Chron.* 3rd Ser. **37**:36. 1905.

Red Pear-shaped. 2. *Rural N. Y.* **44**:365. 1885.

Goeggingers Pyriform. 3. *Gard. Chron.* 3rd Ser. **62**:232. 1917.

This cultivated form of a wild pear-shaped currant found in western Russia was raised by Heinrich Goegginger, a market gardener in Riga, Russia, about 1875. In the

wild state there are both red and white forms of these currants. Plants moderately vigorous; foliage thick, peculiarly net-veined, deeply lobed; berries of medium size, pear-shaped, attractive red, suitable for table decorations besides being worthy of note for dessert and preserving.

Gondouin Red. 1. *Mag. Hort.* **17**:62. 1851. 2. *Gard. Chron.* 3rd Ser. **62**:232. 1917.
Red Provence. 3. *Horticulturist* **2**:266. 1847–48.

This variety was originated by M. Gondouin, St. Cloud, France, nearly a century ago. Both this and the white-fruited variety have frequently been designated as forming two distinct groups of currants from which cultivated sorts have arisen. The variety has also been confused with Victoria. From 1862 until 1871 the variety was included in the American Pomological Society's recommended fruit list. Plants very vigorous, upright, young shoots reddish; bunches medium in size; berries large, bright red; late.

Gondouin White. 1. *Mag. Hort.* **21**:444. 1855.
White Gondouin. 2. *Can. Cent. Exp. Farm Bul.* **56**:14. 1907.

This variety originated in France many years ago and is closely allied to the red-fruited sort of the same name. It was cataloged in the recommended list of the American Pomological Society from 1862 to 1871 and again from 1897 to date. Plants vigorous, upright, not always productive; bunches of medium length, only partly filled; berries small to medium, yellowish, briskly subacid; good; midseason.

Greenfield. 1. *Can. Hort.* **14**:179. 1891.

Originated at Ottawa, Ontario, by Samuel Greenfield, about 40 years ago. Plants vigorous, spreading, productive; bunches medium, well filled; berries above medium in size, bright red, pleasantly acid; good; midseason.

Hätive de Bertin. 1. *Soc. Nat. Hort. France Pom.* 216. 1907.
La Hätive. 2. *Horticulturist* **10**:69. 1855.

This variety originated with M. Bertin, Versailles, France, about 1825. It was included in the American Pomological Society's list of recommended fruits from 1869 to 1871. Plants productive; bunches well filled; berries large, deep red, transparent, very sweet; good; early.

Holland. 1. *Am. Pom. Soc. Cat.* 18. 1897. 2. Card *Bush-Fr.* 307. 1917.
Groseille de Hollande. 3. *Pom. France* **8**:No. 4, Pl. 4. 1873.
Long Bunch Holland. 4. *Cult. & Count. Gent.* **42**:444. 1877. 5. *Ohio Sta. Bul.* **371**:339, 391. 1923.

The origin of this variety is unknown. There seems to be little doubt, however, but that it is a very old European currant. It has been known by many names most of which have been directly connected with some characteristic of fruit-clusters or berries. As grown at this Station the variety is very similar or identical with Prince Albert so that a further description is unnecessary.

Indiana. 1. Card *Bush-Fr.* 307. 1917. 2. *Ohio Sta. Bul.* **371**:355. 1923.

This variety originated on the farm of J. E. Shideler, Fairview Park, Indianapolis, Indiana, between 1890 and 1900. It was introduced about 1901 but was never widely

disseminated and has long since been dropped from cultivation, giving way to Pomona, a variety which it closely resembles.

Knight Early Red. 1. Downing *Fr. Trees Am.* 204. 1845.

A red currant raised long ago by Thomas Andrew Knight, Downton Castle, Wiltshire, England. Its chief merit seems to be earliness.

Knight Improved. 1. *Ia. Hort. Soc. Rpt.* 33, 58. 1897.

Origin unknown. Mentioned frequently in the Iowa Horticultural Society Report for 1897 as a very vigorous, productive currant bearing fruit of largest size and good quality. The variety has often been confused with Pomona, which it closely resembles.

Knight Large Red. 1. *Gard. Chron.* 857. 1842. 2. *Am. Pom. Soc. Cat.* 94. 1862.

Raised by Thomas Andrew Knight early in the nineteenth century. In 1862 the American Pomological Society placed it in the list of recommended fruits, but dropped it in 1897. Plants vigorous, productive; bunches large; berries large, bright red.

Knight Sweet Red. 1. *Gard. Chron.* 817. 1841. 2. Fuller *Sm. Fr. Cult.* 207. 1867. 3. Bunyard *Cat.* 24. 1921.

Another of Thomas Andrew Knight's seedlings raised early in the nineteenth century. Being less acid than most sorts, it is a pleasant dessert fruit. Plants upright, vigorous, moderately productive, with dark green, thick and coarsely serrate foliage; bunches long, tapering; berries large, very dark red, subacid, with trace of sweetness; good.

La Caucasse. 1. Elliott *Fr. Book* 236. 1859. 2. *Horticulturist* **18**:290. 1862.

Probably originated in France three-quarters of a century ago. Some pomologists consider it identical with Versailles. Plants vigorous, upright, productive; bunches very long; berries large, red, sprightly, becoming mildly acid; good.

La Conde. 1. *Can. Cent. Exp. Farm Bul.* **56**:12. 1907.

A strong, moderately spreading grower; fairly productive; bunches of medium size, well filled; berries medium to large, bright scarlet, acid; fair.

La Constante. 1. *Gard. Chron.* 3rd Ser. **62**:232. 1917.

Origin unknown. Although similar to Ruby, this variety is considered distinct by E. A. Bunyard, Maidstone, England, and is rated as one of the latest and best of the red currants. Plants vigorous, very upright; bunches moderately long; berries bright red; very late.

Lace-leaved. 1. Hogg *Fruit Man.* 319. 1884.

Similar if not identical to Knight Large Red. Bunches long, produced in large clusters; berries large, red, smaller than Red Dutch.

Lakewood. 1. *Mich. Sta. Bul.* **67**:19. 1890.

Supposed to have originated in Ohio prior to 1890. Plants vigorous, variable in productiveness; bunches variable in length, usually compact; berries large; fair in quality; type of Cherry.

Lancaster. 1. *Mich. Sta. Bul.* **177**:28. 1899.

Mentioned as a white currant of good quality but only moderately productive.

Large White. 1. *Can. Exp. Farms Rpt.* 405. 1898.

Plants vigorous, productive; bunches long, well filled; fruit large, yellowish white, sweet; good; midseason.

Large White Brandenburg. 1. *Can. Cent. Exp. Farm Bul.* **56**:14. 1907.

Plants of medium vigor, upright-spreading, moderately productive; bunches long, usually only half filled; berries above medium to large, yellow, briskly subacid, with a pleasant flavor; good; early.

Late Victoria. 1. *Am. Pom. Soc. Rpt.* 288. 1921.

Introduced by Gill Brothers Seed Company, Portland, Oregon. It is described as having large, long bunches of red fruit.

London Market. 1. *U. S. D. A. Pom. Rpt.* 395. 1891. 2. *Rural N. Y.* **56**:327. 1897. 3. *Ohio Sta. Bul.* **371**:338, 386. 1923.

Short-bunched Red. 4. Downing *Fr. Trees Am.* 491. 1869.

London Red. 5. *Mich. Sta. Bul.* **129**:15. 1896.

Scotch. 6. Bunyard *Cat.* 23. 1915–16.

Of little importance in New York and the East, London Market is considered a very good red currant in parts of the Middle West. It seems to withstand hot, dry weather rather better than most other sorts, and the plants are resistant to currant borers and currant diseases. It is said to be the most resistant of all red currants to the pine blister-rust. At this Station, however, the foliage is very susceptible to currant aphis. This variety probably originated in England many years ago and is possibly identical with Scotch mentioned by English writers. It was imported to the United States more than seventy years ago and has been grown under various names. There seems to be no doubt but that London Red and Short-bunched Red are identical with this variety. In 1897 the variety was added to the recommended fruit list of the American Pomological Society.

Plants large, vigorous, upright, holding their foliage well, dense, fairly productive, quite resistant to insects and disease, especially to the white pine blister-rust; young shoots very numerous, slender; leaf-buds small, short, pointed, lean, lightly pubescent, usually appressed; leaves medium in size and color, subcordate to cordate at the base, with very shallow, obtuse lobes, thin, rugose, glabrous, with crenate margins; petiole medium in length, slender, pubescent, greenish. Flowers midseason, in loose, somewhat erect, short racemes; calyx-tube greenish, broadly campanulate, glabrous; calyx-lobes obtuse, greenish, with fine, reddish stripes; ring lacking or very indistinct; anther-cells closely joined; ovary glabrous. Fruit late midseason, hangs a long time; clusters nearly long, medium compact, the tips well filled, 12–20 berries, held out rather stiffly; cluster-stems medium in length and thickness; berry-stems slender; berries above medium to medium in size, average round-oblate but variable, glossy dark red; skin smooth, thin, tough, translucent; flesh firm, juicy, sprightly; quality good.

Marvin Crystal. 1. *Ohio Sta. Bul.* **371**:357. 1923.

Marvin's Seedling. 2. *N. Y. Sta. Bul.* **95**:427. 1895.

This variety was received at the New York Experiment Station for testing in 1892 from D. S. Marvin, Watertown, New York. Later Mr. Marvin sold the variety to J. C.

Vaughan & Company, Chicago, Illinois, who renamed and introduced it. Plants upright, moderately vigorous; bunches moderately long; berries large, white, mildly acid; good.

Moore Early. 1. Bunyard Cat. 26. 1923.

Moore Seedling. 2. *Can. Cent. Exp. Farm Bul.* **56**:12. 1907. 3. *Ohio Sta. Bul.* **371**:357. 1923.

Originated by Jacob Moore, Attica, New York, about 40 years ago probably as a cross between Cherry and White Grape. Plants vigorous, upright, productive; bunches well filled, of medium length; berries large, bright scarlet, pleasantly acid; good; midseason.

New Victoria. 1. *Ont. Fr. Exp. Sta. Rpt.* 19, fig. 1900.

Origin unknown. Plants vigorous, upright-spreading, hardy, moderately productive; bunches long, loose; berries small to medium, red; pleasantly flavored; midseason.

Newark. 1. *Am. Pom. Soc. Rpt.* 288. 1921.

Introduced by C. W. Stuart & Company, Newark, New York. Plants vigorous, productive; bunches long; berries above medium in size, red, subacid.

North Star. 1. *N. Y. Sta. Bul.* **95**:421, Pl. II, fig. 7. 1895. 2. *Gard. Chron.* 3rd Ser. **62**:217. 1917.

An accidental seedling which originated in Springfield, Massachusetts, shortly before 1865. The variety was sold to the Jewell Nursery Company, Lake City, Minnesota, who introduced it. In 1899 the American Pomological Society placed it in the list of recommended fruits. As grown at this Station the plants are vigorous, upright, slightly spreading, productive; bunches medium in length; berries variable, large and small, bright scarlet, mildly acid; fair; midseason.

October Red. 1. *Country Gent.* **77**:14. 1912. 2. *Ohio Sta. Bul.* **371**:357. 1923.

Originated by E. P. Powell, Clinton, New York, early in the present century. It is an attractive red currant which received its name because of its lateness in ripening.

Pack. 1. *Am. Pom. Soc. Rpt.* 288. 1921.

Introduced recently by the Utah Nursery Company, Salt Lake City, Utah. It is said to be "an improvement upon Fay, which it resembles; more prolific, however; very large, better flavor. Fruit does not fall off as in other varieties."

Palmer Large Red. 1. *Horticulturist* **9**:161. 1854.

Extensively cultivated in certain localities in England. Plants vigorous, productive; bunches long; berries large, red; good.

Panshanger Late. 1. Staward *Pract. Hdy. Fr. Cult.* 79, Pl. 1920.

Originated a few years ago by Richard Staward of England. Plants vigorous, productive; fruit large, in well-filled bunches, red; good; late.

Perfection. 1. *U. S. D. A. Yearbook* 404, Pl. 54. 1904. 2. *N. Y. Sta. Bul.* **364**:192. 1913. 3. *Ohio Sta. Bul.* **371**:342, 371. 1923.

Of the several new currants, perhaps Perfection is receiving more notice in New York than any other. It is credited with being a splendid sort in parts of the Northwest as well. The characters which commend it are vigor, hardiness, healthfulness, and produc-

tiveness of plant. The clusters are large, uniform, and borne on a long stem so that picking is easy. The berries are large, uniform, bright clear red, and are as pleasing in flavor as those of any other variety and superior to those of most other currants. The fruit is borne on the old wood in a manner peculiar to this sort alone. In Canada it is found to be one of the hardiest of all currants. The canes have the fault of breaking rather easily. The fruits scald considerably in hot weather if not picked as soon as ripe. This variety was originated in 1887 by C. G. Hooker, Rochester, New York, as a cross between Fay and White Grape. Its commercial introduction dates from 1902 and in 1909 the sort was placed in the American Pomological Society's fruit list.

Plants seldom large, vigorous, upright-spreading, not very dense, healthy, productive to very productive; young shoots few, smoother than Wilder, duller and with less red than Cherry, break rather easily; leaf-buds short and plump, small to medium, variable in length and shape, nearly glabrous, appressed; leaves medium in size, subcordate at the base, with obtuse lobes, the terminal lobe very large, dull, rugose, glabrous, with crenate margins; petiole green with tinge of red, pubescent. Flowers early, large, in long, loose, drooping racemes; calyx-tube greenish, saucer-shaped, glabrous; calyx-lobes obtuse, thin, glabrous, yellowish green, with trace of red; stamens with a broad connective between the anther-cells; ring well developed, fleshy, greenish; ovary glabrous. Fruit early midseason, easily picked, ships well; clusters long to very long, compact, cylindrical, slightly tapering, with well-filled tips, 15–25 berries, drooping; cluster-stems very long, slender to medium; berry-stems long, medium in thickness; berries uniformly large, cling well, roundish or slightly oblate, bright handsome medium to dark red; skin smooth, thin but tough; flesh juicy, tender, sprightly subacid becoming mild when fully ripe; pleasantly flavored; quality very good.

Pitmaston Sweet Red. 1. *Horticulturist* **9**:162. 1854. 2. *Ohio Sta. Bul.* **371**:357. 1923.

Raised by John Williams, Pitmaston, near Worcester, England. Bunches short; berries small, red; very sweet; not unlike Knight Sweet Red.

Pomona. 1. *Am. Pom. Soc. Cat.* 28. 1909. 2. *Ohio Sta. Bul.* **371**:343, 375. 1923.

About 1873, George W. Blue found in a garden, near Fairview Park, Indianapolis, Indiana, a variety which was then being grown as Knight Sweet Red but which he found to be distinct. He named it Pomona after the name of his home farm. The variety was introduced in 1896 by Albertson & Hobbs, Bridgeport, Indiana. In 1909 the American Pomological Society added Pomona to its list of recommended fruits. Plants moderately large, vigorous, spreading, productive; bunches long, well filled; berries of medium size, bright red, juicy, mildly acid; good; midseason.

Prince Albert. 1. *Horticulturist* **9**:9, 10, fig. 2. 1854. 2. Bunyard *Cat.* 23. 1915–16. 3. *Ohio Sta. Bul.* **371**:344, 393. 1923.

Rouge de Hollande. 4. *Ann. Pom. Belge* **3**:82. 1855.

Holländische Korallenbeere. 5. Dochnahl *Führ. Obstkunde* **4**:188. 1860.

Rothe von Verriére. 6. Lucas-Oberdieck *Ill. Handb. Obst.* **7**:271. 1875.

Rivers Late Red. 7. Rivers *Cat.* 19. 1898–99.

PERFECTION

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PRINCE ALBERT

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Prince Albert is an old European currant grown under several names. The variety is one of the latest to flower and to ripen its fruits, so that it becomes exceedingly valuable in lengthening the currant season. The berries are very large, have thin skins, and a most pleasing piquancy of flavor. The bushes are vigorous, but only moderately productive; they are as healthy as any and have a characteristic upright habit of growth. Prince Albert was introduced in America from France about 1850. Many writers have confused the synonymy of this variety with that of Red Dutch, although the two varieties are quite distinct. English pomologists have considered the continental Red Dutch identical with Prince Albert but the two seem to be distinct. Prince Albert was added to the recommended fruit list of the American Pomological Society in 1862.

Plants large, vigorous, upright-spreading, very dense, medium to very productive, usually free from anthracnose; young shoots numerous, rather slender, tinged red; leaf-buds characteristically large, long, pointed, plump, very pubescent, variable in appression; leaves drop late in the fall, subcordate to truncate at the base, with short-pointed lobes, thick, leathery, distinctly dark green, semi-glossy, very rugose, glabrous, with crenate margins; petiole long, green, tinged dull red, holds the foliage stiffly upright. Flowers late midseason, medium to large, characteristically reddish, with faint tinge of yellow, in very long, dense, drooping, many-flowered racemes; calyx-tube green, tinged brownish red, campanulate, glabrous; calyx-lobes obtuse, tinged with red; petals very large and broad, greenish yellow; ring absent or very indistinct; anther-cells closely connected; ovary glabrous. Fruit very late, hangs on an unusually long time; clusters long, well filled, tapering, rather loose, 14–21 berries; cluster-stems very long, of medium thickness; berry-stems short; berries of medium size but variable, roundish oblate or slightly obovate, light, bright red; skin thin, smooth, tough, translucent; flesh firm, juicy, sprightly becoming subacid, highly flavored; quality good.

Prince Coral. 1. *Rural N. Y.* **10**:255. 1859.

Of American origin. Introduced by William R. Prince & Company, Flushing, New York, about 1860. It is a very productive sort bearing large attractive red fruit of excellent quality.

Purity. 1. *Rural N. Y.* **57**:123. 1898.

Introduced by John Lewis Childs, Floral Park, New York. Plants low growing and sprawling; fruit yellowish white; not equal to the White Transparent either in quality or productiveness.

Rankins Red. 1. *Can. Cent. Exp. Farm Bul.* **56**:13. 1907.

Origin unknown. Plants vigorous, upright, very productive; bunches long, well filled; berries medium in size, bright scarlet, acid; fair; midseason.

Red Cross. 1. *Am. Gard.* **17**:4,441, fig. 6. 1896. 2. *Can. Hort.* **19**:226, 282. 1896. 3. *Ohio Sta. Bul.* 371:344, 378. 1923.

Some years ago Red Cross was much grown in the Hudson River Valley where it was esteemed for its large bunches and large fruits. In recent years, however, it has been found that it is excelled by several other of the large-fruited sorts and is now passing out of cultivation. Perhaps the chief drawback to its culture is that the fruits crack very readily.

To offset this fault they hang on the bushes well and are easily picked. The berries are very mild in flavor and do not make a good jelly, for which purpose currants are so commonly used. In many localities the bunches run small. This variety originated as a cross between Cherry and White Grape by Jacob Moore, Attica, New York, in 1885, and first fruited about 1889. The American Pomological Society added Red Cross to its fruit catalog list in 1899.

Plants large, vigorous, upright-spreading, dense, productive, healthy; young shoots numerous; leaf-buds large, medium long, pointed, rather plump, pubescent, free; leaves of medium size, deeply cordate at the base, with shallow, obtuse lobes, medium in thickness and color, dull, rugose, glabrous, with slightly hairy, crenate margins; petiole medium in length and thickness, green, with slight tinge of red, pubescent. Flowers midseason, in long, drooping racemes variable in compactness; calyx-tube pale green, saucer-shaped, glabrous; calyx-lobes obtuse, widely separated, pale green; ring fleshy, well defined; ovary glabrous. Fruit midseason, hangs on the bushes well, easy to pick; clusters short to above medium, the tips poorly filled, loose; cluster-stems long, slender to medium; berry-stems long; berries medium to large, round, glossy, bright light red; skin smooth, thin, tender, cracks under unfavorable conditions, translucent; flesh juicy, sprightly becoming mildly flavored when fully ripe; quality good.

Red Dutch. **1.** Langley *Pomona* 124. 1729. **2.** Downing *Fr. Trees Am.* 203. 1845. **3.** *Gard. Chron.* N. S. 5:527. 1876. **4.** *Ohio Sta. Bul.* 371:345, 373, fig. 1923.

Groseillier à Gros Fruit Rouge. **5.** Duhamel *Trait. Arb. Fr.* 1:266. 1768.

Fertile de Palnau. **6.** *Horticulturist* 7:425. 1852.

Holländische Rote. **7.** Lucas-Oberdieck *Ill. Handb. Obst.* 7:268. 1875.

This old sort is now mainly of historical importance only, although it is to be found in almost countless numbers in the gardens of the country. It is little grown in New York or other parts of the East in commercial plantations, but is still somewhat largely grown in the Middle West. The plants are nearly faultless, but the currants are small and ripen ununiformly, to offset which they are of the very best quality. While there are many synonyms, the true Red Dutch is easily identified from the description which follows. This is one of the oldest if not the oldest cultivated currant known. The name has appeared in print for more than two centuries, but no one can be quite certain that the Red Dutch grown today is the Red Dutch of two centuries ago. It is somewhat difficult, also, to connect Holländische Rote of continental Europe with the Red Dutch now grown in England and America. The currant, long grown in America under the name Fertile de Palnau, is probably Red Dutch. The two have proved identical at this Station as well as in many other localities here and abroad. Red Dutch was added to the American Pomological Society's list of recommended fruits in 1852.

Plants large, vigorous, upright, dense, productive to very productive, healthy; young shoots very numerous, comparatively slender; leaf-buds small, pointed, lean, nearly glabrous, appressed; leaves medium in size, length, and thickness, subcordate to almost truncate at the base, with short-pointed lobes, dull, dark green, glabrous, rugose, with crenate margins; petiole medium in length and thickness, greenish, pubescent. Flowers early, in fairly long, moderately loose, drooping, many-flowered racemes; calyx-tube greenish,

RED DUTCH

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saucer-shaped, glabrous; calyx-lobes obtuse, separate, pale yellowish green; ring fleshy, rather inconspicuous; ovary glabrous. Fruit early midseason; clusters long, slender, 10–18 berries, with well-filled tips, very loose; cluster-stems long, slender; berry-stems rather short, slender; berries cling well, variable in size, average medium to small, round, bright glossy red; skin smooth, medium in thickness, tender, translucent; flesh juicy, firm, very sprightly; quality of the best.

Red Grape. 1. *Horticulturist* **9**:11. 1854.

Introduced early in the nineteenth century. Similar to Red Dutch but more acid and plants not quite so upright. Fruit large; branches very long, clear red; productive. Listed by the American Pomological Society in its recommended list of fruits in 1862; the name still appears in the Society's catalog.

Redpath Ruby. 1. *Can. Cent. Exp. Farm Bul.* **56**:13. 1907.

Plants moderately vigorous; fruit medium to large, scarlet, acid; good.

Ringens. 1. *Can. Cent. Exp. Farm Bul.* **56**:13. 1907.

Plants moderately vigorous, spreading, unproductive; bunches long, well filled; berries large, pale scarlet, pleasantly acid; good; late.

Rivers. 1. *U. S. D. A. Farmers' Bul.* **1024**:31. 1919.

Rivers' Late Red. 2. Rivers *Cat.* 19. 1898–99.

Originated in England about thirty-five years ago. Plants vigorous, upright; bunches large; berries large, red; good; late.

Rouge de Boulogne. 1. *Gard. Chron.* 3rd Ser. **62**:217. 1917.

This variety originated in France more than half a century ago. As grown in England it resembles Versailles closely, though inferior in most characters.

Ruby. 1. *Gard. Mon.* **24**:18. 1882. 2. Card *Bush-Fr.* 385. 1898.

Moore Ruby. 3. *Can. Cent. Exp. Farm Bul.* **56**:12. 1907.

Originated by Jacob Moore, Attica, New York, and introduced about 1895. As grown at this Station the plants are dwarfish, upright, moderately vigorous and productive; bunches short; berries of medium size, round, dark red, with firm flesh, juicy, sprightly; good; early.

St. Gilles. 1. *Am. Pom. Soc. Cat.* 26. 1899.

Belle de St. Gilles. 2. *Rural N. Y.* **10**:255. 1859.

Of European origin. Plants upright-spreading, vigorous, hardy, unproductive; bunches large, compact; berries large, red, subacid; good; midseason. Placed in the American Pomological Society's list of recommended fruits in 1899.

Scarlet Gem. 1. *Mich. Sta. Bul.* **206**:60. 1903.

Scarlet. 2. Kenrick *Am. Orch.* 287. 1841.

Plants dwarf, coarse, and sparsely covered with foliage; bunches long, well filled with small, subacid, pleasantly flavored fruits.

Seedless Red. 1. *Rural N. Y.* **10**:255. 1859. 2. *Gard. Chron.* 3rd Ser. **62**:232. 1917.

This variety was found many years ago by Herrn Petzold, Hessen, Germany. Usually the seeds do not form so that only the soft unfertilized ovules remain. Plants dwarfish,

unproductive; bunches long; berries large, dark red, glossy, seedless or nearly so; fair; midseason.

Select. 1. *Mich. Sta. Bul.* 118:20. 1895.

A red currant of the Cherry type; somewhat lacking in vigor and productiveness; clusters compact; berries large; quality fair.

Silver Mine. 1. Card *Bush-Fr.* 309. 1917.

Introduced by the Gardner Nursery Company, Osage, Iowa. Described " as prolific, large, red, of fine flavor, holding its leaves and fruit very late."

Simcoe King. 1. *Can. Exp. Farm Rpt.* 82. 1899. 2. *Can. Cent. Exp. Farms Bul.* 56: 13. 1907.

Similar to Red Grape. Plants of moderate vigor, upright, productive; bunches medium in size, only half filled; berries large, bright to pale scarlet, acid; good; midseason.

Skinner Early. 1. Bunyard *Cat.* 23. 1915–16.

An English currant, esteemed in Kent for market, and named after a local grower, although it may quite possibly be an old sort renamed. Plants vigorous, upright, productive; bunches long; berries of medium size, bright red; good; earliest of all.

Southwell Red. 1. *Garden* 84:557, fig. 1920.

Presumably a variety of comparatively recent English origin. Described as one of the most productive of English currants, blooming late, thereby escaping spring frosts and producing a crop when many sorts fail. Besides these favorable attributes its fine appearance makes it popular with English growers for market. Fruit very large, uniform in size, bright glossy red; good; late.

Stevens Superb. 1. *Am. Pom. Soc. Sp. Rpt.* 80. 1904–05.

This variety originated with Abel F. Stevens, Wellesley, Massachusetts, who considered it one of the best seedlings he had grown. Plants very vigorous and productive; bunches long, shouldered; berries very large, crimson, attractive; very good.

Stewart. 1. *Minn. Hort. Soc. Rpt.* 93. 1876.

Originated in Minnesota. Plants upright, vigorous, hardy, productive; bunches large, long; berries large, red, mildly acid; good; midseason; hangs well after ripening.

Utrecht. 1. Bunyard *Cat.* 23. 1915–16.

The name of this variety would indicate that it originated in Utrecht, Holland. Plants vigorous, upright; bunches medium in size; berries medium, dark red; good; midseason.

Versailles. 1. *Ohio Sta. Bul.* 371:337, 372. 1923.

La Versaillaise. 2. *Mag. Hort.* 24:374. 1858.

Magnum Bonum. 3. *Rural N. Y.* 10:255. 1859.

Versaillaise. 4. *Ibid.* 11:247, fig. 1860. 5. *Gard. Chron.* 3d Ser. 62:217, fig. 83. 1917.

At one time about the best of the currants grown in New York and the East, Versailles has now given way to newer and better currants. The plants lack in productiveness and the clusters are not large enough or uniform enough to suit the demands of present markets. There is much confusion in the group of currants to which Versailles belongs, and it is very difficult to distinguish it from Cherry and other representatives of the same group. At

VERSAILLES

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VICTORIA

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this Station Versailles has a longer bunch, darker fruit, and less tendency to " go blind," that is, to lack the terminal bud, than Cherry. Versailles was originated by M. Bertin. Versailles, France, presumably from seed of Cherry, about 1835. The variety was brought to America nearly three-quarters of a century ago. In 1862 the American Pomological Society added it to its list of recommended fruits.

Plants vigorous, large, upright to spreading, healthy; young shoots numerous, with a tendency to " go blind " near the terminal, rather thick and somewhat brittle; leaf-buds medium in size and length, pointed, lean, glabrous, appressed; leaves medium to large, with obtuse lobes, deeply cordate at the base, medium in thickness and color, dull, rugose, glabrous, with crenate margins; petiole of average length and thickness, green, pubescent. Flowers early midseason, in long, few-flowered, loose, drooping clusters; calyx-tube green, with faint red, saucer-shaped, glabrous; calyx-lobes broadly obtuse, pale green, with very slight red; petals often notched; ring well developed, fleshy, greenish. Fruit early midseason; clusters short to medium, loose, 10–16 berries, drooping; cluster-stems short to medium, slender; berry-stems medium to rather long, slender; berries variable in size, medium to large, round, dark red; skin smooth, thin, tough, translucent; flesh very juicy, subacid to sprightly; quality good.

Victoria. **1.** Downing *Fr. Trees Am.* 491. 1869.

May's Victoria. **2.** *Gard. Chron.* 607. 1842. **3.** *Mag. Hort.* **13**:392, fig. 32. 1847.

Houghton Castle. **4.** *Gard. Chron.* 717. 1847. **5.** *Ibid.* 3rd Ser. **62**:205. 1917.

Raby Castle. **6.** *Gard. Chron.* 619. 1847. **7.** *Ibid.* 3rd Ser. **62**:205. 1917.

Queen Victoria. **8.** *Gard. Chron.* 812. 1860.

Red Grape. **9.** *Horticulturist* **21**:273. 1866.

Wilmot's Red Grape. **10.** Thomas *Am. Fruit Cult.* 537. 1875–85.

New Red Dutch. **11.** Bunyard *Cat.* 22. 1915–16.

Were it not for the fact that the berries are small and ripen rather unevenly, Victoria would hold high rank among cultivated currants. The plants are exceedingly vigorous and productive, and the fruits are among the best in quality and possibly keep longer on the bushes than those of any other variety. The plants are rather more resistant to currant borers than those of other varieties, and are very free from most other insects and diseases as well; they are, however, susceptible to scalding in hot weather. In Canada it is found that Victoria is hardier than most other standard currants. The variety has the peculiarity of holding its foliage very late in the fall. More confusion exists in the identity of this currant than with almost any other sort. So many varieties have been sold under the various names appearing above that it is almost hopeless to straighten out the tangle. From various accounts it appears that the variety originated about 1800 on an estate known as Houghton Castle, near Hexam, Northumberland, England, having been discovered by Robert Charlton, a nurseryman's apprentice. Charlton later sold the new currant under the name Houghton Castle. About 1840, a Mr. May, Ripon, Yorkshire, England, advertised a currant under the name May's Victoria, which he had procured from gardens at Raby Castle, and which had been known there as Raby Castle. Later Mr. May identified his Victoria with Charlton's Houghton Castle and upon investigation found that the Houghton Castle had once been sent to Raby Castle, where it had been renamed. While

Bunyard, in the reference given, is of the opinion that Raby Castle and Houghton Castle or Victoria are distinct, the writers believe that they are identical. In 1852 the American Pomological Society placed this variety in its list of recommended fruits under the name May's Victoria, but later shortened the name to Victoria.

Plants very large, very vigorous, upright, dense, productive to very productive, susceptible to anthracnose but resistant to most other diseases; young shoots very numerous, grayish brown; leaf-buds large, rather long, pointed, plump, very heavily pubescent, bluish gray, free; leaves slow in dropping in the fall, medium to large, subcordate to truncate at the base, with very obtuse lobes, medium in thickness, pale green, dull, rugose, glabrous, with crenate margins; petiole medium in length and thickness, green, pubescent. Flowers midseason, in rather dense, drooping racemes; calyx-tube greenish, broadly campanulate, glabrous; calyx-lobes very obtuse, widely separated, glabrous, striped and streaked with red; petals much contracted at the base; ring absent; anther-cells separated by a large connective; ovary glabrous. Fruit late midseason, hangs a long time; clusters short to medium, filled to the tip, 10–20 berries, rather loose; cluster-stems short to medium, slender; berry-stems slender; berries small, medium in size, adhere a long time, roundish oblate, bright, glossy red; skin smooth, thin, tough, translucent; flesh juicy, firm, very sprightly; quality good.

Warner Red Grape. 1. Tilton *Jour. Hort.* **9**:188. 1871. 2. *Gard. Chron.* 3rd Ser. **62**: 217. 1917.

Very similar to Chenonceau but with shorter bunches. A poor cropper of little merit.

Wentworth Leviathan. 1. *Can. Cent. Exp. Farm Bul.* **56**:14. 1907.

A strong moderately spreading grower, rather unproductive; bunches of medium size, about two-thirds filled; berries varying from small to large, pale yellow, briskly subacid, with a pleasant flavor; good; midseason.

Wentworth Seedling. 1. *Can. Cent. Exp. Farm Bul.* **56**:14. 1907.

Plants moderately vigorous, spreading, unproductive; bunches of medium length, half filled; berries of medium size, bright scarlet, pleasantly acid; good; midseason.

Werder White. 1. *Meehans' Mon.* **6**:97, fig. 1896.

Originated by William Kleim at Gotha, near Erfurt, Germany. It yields long bunches of large, attractive white fruit.

White Cherry. 1. *Gard. Chron.* 193. 1841. 2. *Can. Cent. Exp. Farm Bul.* **56**:14. 1907.

A strong, upright, very productive grower, yielding medium-sized, well-filled bunches of berries which are large, pale yellow, acid and of fair quality; season early.

White Dutch. 1. Langly *Pomona* 124. 1729. 2. Lindley *Guide Orch. Gard.* 160. 1831. 3. Downing *Fr. Trees Am.* 492. 1869.

Groseillier à Gros Fruit Blanc. 4. Duhamel *Trait. Arb. Fr.* **1**:266. 1768.

White Chrystal. 5. Lindley *Guide Orch. Gard.* 160. 1831.

Pearl White. 6. *Lond. Hort. Soc. Cat.* 67. 1842.

Blanche de Hollande. 7. *Gard. Chron.* 812. 1860.

White Clinton. 8. *Horticulturist* **21**:273. 1866.

White Antwerp. 9. Thomas *Am. Fruit Cult.* 537. 1875–85.

WHITE DUTCH

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WHITE GRAPE

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This is the oldest of the named white currants, has several synonyms, and is badly confused with other white varieties. Careful reading of the following description, however, should enable anyone to identify it. The darker color of the fruit is possibly the best distinguishing mark. The fruits are very early and very sweet, other characters which help to identify it. The berries are of but medium size or small, and are not uniform in size, characters which will drive it from general cultivation in competition with larger-berried sorts. White Dutch is a very old, European variety, dating back more than two centuries. In the literature, however, there can be found no account of its origin or the history of its dissemination. White Dutch together with Red Dutch long ago were largely used in the improvement and development of varieties of currants. The variety was probably brought to America early in the nineteenth century and has since been grown in most currant plantations. In 1852 the American Pomological Society placed White Dutch in its list of fruits recommended for general cultivation.

Plants above medium in size, vigorous, upright, slightly spreading, dense, very productive, healthy; young shoots numerous; leaf-buds small, pointed, lean, nearly glabrous, appressed; leaves medium in size, subcordate to almost truncate at the base, with obtuse lobes, dark green, rugose, glabrous, with somewhat serrate margins; petiole medium in length and thickness, greenish, tinged red at the base, pubescent. Flowers midseason, in short, dense, drooping medium- to few-flowered racemes; calyx-tube greenish, saucer-shaped, glabrous; calyx-lobes broadly obtuse, separated, glabrous, pale green; ring lacking or very faint; ovary glabrous. Fruit early; clusters short, medium compact, tips poorly filled, 8–15 berries; cluster-stems medium in length and thickness; berry-stems short, slender; berries small to medium, not uniform, roundish oblate, yellowish white, a little darker than White Grape; skin smooth, thin, tender, translucent; flesh moderately juicy, mildly subacid, almost sweet; quality excellent; seeds large, medium in number.

White Grape. **1.** *Trans. N. Y. State Agr. Soc.* **9**:373. 1849. **2.** *Cultivator* 3rd Ser. **5**: 13, fig. 1857. **3.** *Gard. & For.* **7**:188. 1894.

Imperial Yellow. **4.** *Horticulturist* **21**:273. 1866.

White Grape is distinguished from other varieties of its kind by having the largest cluster and berry of any. The currants are rather lighter in color than those of White Dutch, are sourer and not so richly flavored. Possibly this variety is the best of the white currants because of the vigor, productiveness, hardiness, and healthiness of the plant. The variety is an excellent one for both home and commercial plantations, although its spreading habit of growth, making it somewhat unmanageable, is somewhat against it. The slenderness of the canes help to identify the variety. No trace of the history of this sort is obtainable except that it is an old European variety long grown in America. There is also no clue as to when it was brought to this country, but the literature leads us to believe that it was much cultivated at least a hundred years ago. The nomenclature is in a bad state of confusion, and the variety has been often mixed with White Imperial and White Transparent. In 1852 the American Pomological Society added White Grape to its catalog list of recommended currants.

Plants of medium size and vigor, spreading, sometimes sprawling, dense, productive; young shoots numerous, rather slender; leaf-buds large, long, pointed, plump, pubescent,

free; leaves subcordate to cordate at the base, with obtuse lobes, dark green, at first tinged with brown, dull, rugose, heavily pubescent beneath, with crenate margins; petiole medium in thickness and length, green, tinged with red. Flowers midseason, very small, very light green, in rather short, dense, drooping racemes; calyx-tube greenish, saucer-shaped, glabrous; calyx-lobes obtuse, very widely separated, broad, medium in length and thickness, glabrous; petals much contracted; ring greenish, fleshy; ovary glabrous. Fruit midseason; clusters long, the tips poorly filled, loose, 8–16 berries; cluster-stems short; berry-stems slender, long; berries variable in size averaging large, round-ovate, clear translucent yellowish white, less creamy than is White Dutch; skin smooth, thin, tender; flesh firm, juicy, pleasantly subacid; quality good.

White Imperial. 1. *Rural N. Y.* **56**:487. 1897. 2. Card *Bush-Fr.* 311. 1917. 3. *Ohio Sta. Bul.* **371**:335, 382. 1923.

This variety may usually be told from other white currants by its darker color caused from the large dark colored seeds showing through flesh and skin. Its currants are usually rated as best in quality of all the white sorts. The rich, sweet flavor makes it a choice dessert fruit, although the currants are not quite as attractive in appearance as those of some other kinds. It is often confused with White Grape with which it has many characteristics in common. The origin of this variety is unknown but it has long been known in America and has repeatedly been confused with White Grape which it closely resembles except that the berries are much sweeter. Its rather wide dissemination was due to the high recommendation given it 30 years ago by the late S. D. Willard, Geneva, New York.

Plants above medium in size and vigor, broad, spreading, open, productive; young shoots numerous, slender; leaf-buds large, long, plump, pointed, pubescent, free; leaves large, thin, rugose, dark green, lightly bronzed at first, with coarsely crenate to serrate margins; petiole rather slender, green, lightly tinged with red. Flowers midseason, in short, dense, drooping racemes; calyx-tube greenish, saucer-shaped, glabrous; calyx-lobes broadly obtuse, separated but slightly, glabrous; ring greenish, fleshy; ovary glabrous. Fruit midseason; clusters medium to long, the tips poorly filled, rather loose, 8–16 berries; cluster-stems rather long, medium in thickness; berry-stems slender, medium long; berries somewhat variable in size averaging medium to large, roundish, sometimes slightly ovate, creamy white, a shade darker than White Grape; skin smooth, thin, tender; flesh firm, juicy, pleasantly subacid to sweet; quality very good to best.

White Pearl. 1. *Mag. Hort.* **17**:217. 1851.

This variety was raised by Remi Wilquet, near Brussels, Belgium, more than half a century ago. Plants moderately vigorous, upright-spreading, unproductive; bunches large, well filled; berries large, pale yellow, briskly subacid; good; midseason.

White Provence. 1. *Rural N. Y.* **10**:255. 1859.

Plants very vigorous, productive; leaves large, thick, considerably edged with white; bunches short; berries very large, yellowish white; good; not unlike White Grape except in foliage.

White Transparent. 1. *Am. Pom. Soc. Cat.* 94. 1862. 2. *Horticulturist* **21**:273. 1866.

This is an old French sort said to be a seedling of White Grape with which it is always confused. It resembles that variety so closely that the two readily pass for one and a

WHITE IMPERIAL

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WILDER

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further description is unnecessary. The variety was listed in the American Pomological Society's fruit catalog from 1862 to 1871.

White Versailles. 1. *Gard. Mon.* 25:47. 1883. 2. *N. Y. Sta. Bul.* 95:428. 1895. 3. Bunyard *Cat.* 23. 1915–16.

Originated nearly half a century ago by M. Bertin, Versailles, France. Plants vigorous, upright; bunches long; berries large, slightly darker than White Grape, juicy; good.

White Wine. 1. *Am. Pom. Soc. Rpt.* 162. 1920.

Introduced by H. W. Buckbee, Rockford, Illinois. Plants hardy, vigorous, productive; clusters longer and fruit larger than White Grape, sweet and rich.

Wilder. 1. *N. Y. Sta. Bul.* 95:424. 1895. 2. *Ohio Sta. Bul.* 371:351, 380. 1923. *President Wilder.* 3. *Rural N. Y.* 56:487. 1897.

Probably Wilder is now the leading commercial currant in the Hudson River Valley and the Lake Erie grape belt where currants are most commonly grown for commercial purposes in New York. It is a seedling of Versailles which it greatly surpasses in vigor and productiveness and in the size and beauty of its fruits. The plants are very free from insects and diseases and are most satisfactory in all characters. The fruits sometimes lack uniformity in size of both berry and cluster, to offset which fault they have long stems, making picking easy, and hang longer after ripening than those of most other commercial varieties. Wilder is a seedling of Versailles and was originated by E. Y. Teas, Irvington, Indiana, about 1877. It was named President Wilder in honor of Marshall P. Wilder, noted horticulturist and former President of the American Pomological Society. This Society added this currant to its list of recommended fruits in 1897.

Plants large, vigorous, upright to slightly spreading, dense, usually free from anthracnose, productive to very productive; young shoots very numerous; leaf-buds very small, short, pointed, glabrous, free, lightly tinged with brown; leaves large, dark green, with light bluish tinge, thick, cordate at the base, with obtuse lobes, the notches between the lobes frequently right-angled, with coarsely toothed or slightly crenate margins; petiole medium in length and thickness, dark green, holding the leaves horizontally. Flowers early, in long, loose, drooping, many-flowered clusters; calyx-tube greenish, with traces of red, deep saucer-shaped, glabrous; calyx-lobes broadly obtuse, sharply reflexed at the apex giving a pentagonal effect, light green; petals entire or notched; stamens with a broad connective between the anther-cells; ring present, distinct, faintly colored at first becoming uncolored; ovary glabrous. Fruit late midseason to late, hangs a long time after ripening; clusters long, compact, the tips filled poorly; cluster-stems long, thick; berry-stems medium in length and thickness; berries variable in size averaging medium to large, roundish oblate, handsome, glossy, dark red; skin smooth, thin, tender, translucent; flesh firm, juicy, pleasantly subacid; quality good.

Wilmot Large White. 1. *Gard. Chron.* N. S. 5:528. 1876. *Wilmot's New White.* 2. McIntosh *Bk. Gard.* 2:569. 1855.

Plants upright, productive, with large, flat, deeply cut leaves; bunches medium in size; berries large, white.

CHAPTER XI

VARIETIES OF BLACK CURRANTS

African Queen. 1. *Can. Hort.* **19**:297. 1896.

Supposed so be a seedling of Lee; promising in Canada thirty years ago.

American Black. 1. Kenrick *Am. Orch.* 292. 1832. 2. Fuller *Sm. Fr. Cult.* 199. 1867.

A native species of *R. americanum*, considerably better flavored than the European black currant. Fruit medium in size, roundish oval, black; clusters small, tapering.

Baldwin. 1. *N. Y. Sta. Bul.* **95**:430, Pl. V, fig. 15. 1895.

Baldwin's Black. 2. *U. S. D. A. Pom. Rpt.* 395. 1891.

Carter's Champion. 3. *Jour. Hort.* 3rd Ser. **13**:250, 275. 1886.

This variety originated more than half a century ago in Kent, England. It has long been popular with English growers; but sparingly planted in America. On the grounds of this Station the plants are moderately vigorous and productive; fruit variable, small or large, flavor subacid but milder than most black currants; fair; midseason.

Bang Up. 1. Downing *Fr. Trees Am.* 492. 1869.

Black Bang-up. 2. *Horticulturist* **9**:162. 1854.

An old variety of English origin similar to the Common Black and classed by some as identical with that sort. Plants vigorous, moderately productive; bunches large; berries medium to large, black; skin thick; briskly subacid; good; midseason.

Beauty. 1. *Can. Cent. Exp. Farm Bul.* **56**:18. 1907.

Originated by William Saunders, London, Ontario, prior to 1887, from a seedling of Naples. Plants moderately vigorous and productive; fruit medium in size, in medium-sized clusters, briskly subacid; fair; ripens unevenly from midseason to late.

Bella. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Another of William Saunders' seedlings. Plants moderately vigorous, unproductive; bunches short; berries small, black; good; early.

Black Grape. 1. Bunyard *Cat.* 23. 1915–16.

Ogden. 2. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907.

This variety has been grown in England for more than 80 years. Plants vigorous, very productive; bunches medium; berries uneven, below to above medium, skin moderately thick, fairly tender; briskly subacid; fair; ripens unevenly, usually in late midseason.

Black Victoria. 1. *Can. Hort.* **22**:508. 1899.

Victoria. 2. Rivers *Cat.* 17. 1909–10.

Originated in England. As grown at this Station the plants are medium in size and vigor; clusters short; berries variable in size, averaging large, dull black, subacid; good; ripens unevenly; general appearance very attractive.

Blacksmith. 1. Bunyard *Cat.* 26. 1921. 2. Laxton Bros. *Cat.* 13, fig. 1923.

Recently introduced by Laxton Brothers, Bedford, England. Plants vigorous, productive; berries medium in size, in rather long clusters; late.

Boskoop Giant. 1. *Gard. Chron.* 3rd Ser. **32**:381. 1902. 2. *Jour. Pom.* **1**:77, figs. 14 & 15. 1919. 3. Bunyard *Cat.* 26, fig. 1921.

If Boskoop Giant can be purchased in America true to name, it is probably the best of the black currants here as it is in many parts of Europe. The characters which recommend it are very large, sweet, richly flavored berries and vigorous, productive bushes. The fruit ripens evenly and is easily picked. The clusters are variable in size but average larger than those of any other black currant, but are sometimes a little too loose. It is one of the earliest of the black currants to ripen, although the flowers are late. The crop can usually be gathered at one picking, and the berries hang long on the bushes after ripening. This variety was raised more than forty years ago by a Mr. Hoogendyk, Boskoop, Holland. Later it was imported into England and was introduced in 1895 by George Bunyard & Company, Maidstone, England. Soon after it was brought to America.

Plants large, vigorous, upright, healthy, productive; young shoots numerous; leaf-buds pale dull gray with reddish tinge on those nearest the tips, large, long, obtuse, plump, free; leaves large, deeply cordate at the base, with moderately short-pointed lobes, semi-glossy, rugose, glabrous, with coarsely serrate margins; petiole of medium length, thick, greenish. Flowers late, large, partly closed, dull greenish red, heavily pubescent on the buds, in few- to medium-flowered, rather loose, drooping clusters; calyx-tube greenish, tinged dull red, campanulate, pubescent, slightly resinous; calyx-lobes oblong, narrow, acute, heavily pubescent, with tinge of dull red; ovary resinous, slightly pubescent. Fruit midseason, ripens evenly; clusters often very long for a black currant, loose, with well-filled tips; cluster-stems long, glandular, 8–14 berries; berry-stems long, medium thick, glandular, heavily pubescent; berries variable in size, averaging large, cling well, roundish, dull black; skin glandular, thin, opaque; flesh greenish, tinged red near the skin, juicy, rich, sprightly becoming sweet, aromatic; quality very good.

Brown Fruited. 1. Fuller *Sm. Fr. Cult.* 211. 1867.

Russian Green. 2. *Lond. Hort. Soc. Cat.* 67. 1842.

This is a very old English sort with greenish brown fruit when ripe. Berries dry, hard, astringent; worthless.

Buddenborg. 1. *Can. Cent. Exp. Farm Bul.* **56**:16. 1907. 2. *Am. Pom. Soc. Rpt.* 287. 1921.

Origin unknown. Plants vigorous, moderately productive; bunches medium in size; berries large; skin thick; pleasantly flavored; good; late.

Champion. 1. *Gard. Chron.* N. S. **18**:818. 1882.

Black Champion. 2. *Flor. & Pom.* 174. 1881.

Carter's Champion. 3. *Jour. Hort.* 3rd Ser. **13**:250, 275. 1886.

When the law permitted black currants to be grown in New York, Champion was one of the favorites because of its vigorous, productive bushes and large, mild-flavored currants. The variety has the fault of not ripening its crop evenly. The clusters are usually ripe on some parts of the bush and not on others, so that several pickings are necessary. It is a late sort. Champion was obtained by W. H. Dunnett, Dedham, Essex, England, more than fifty years ago, probably as a chance seedling. Soon after its introduction in

England, the variety was brought to America. In 1897 the American Pomological Society added Champion to its list of recommended fruits.

Plants large, vigorous, upright-spreading, very dense, productive, healthy; young shoots numerous; leaf-buds pale greenish brown, with trace of red, very large, very long, obtuse, very plump, free; leaves large, long, deeply cordate at the base, with moderately long-pointed lobes, thin, semi-glossy, slightly rugose, glabrous, with coarsely serrate margins; petiole greenish, pubescent. Flowers late, large, partly closed, dull greenish red with a grayish cast before opening, in short, loose, drooping, few-flowered clusters; calyx-tube greenish, sometimes tinged with red, campanulate, pubescent, resinous; calyx-lobes oblong, acuminate, thickly pubescent, tinged dull red; petals large; ovary resinous, nearly glabrous. Fruit late; clusters short, loose, tips well filled, 4–8 berries; cluster-stems medium in length and thickness; berry-stems long, slender, heavily pubescent; berries variable in size, small to large, averaging above medium, round, dull black; skin glandular, medium in thickness and toughness, opaque; flesh yellowish, tinged red at the skin, not very juicy, firm, sprightly becoming nearly sweet, aromatic; quality good to very good.

Charmer. 1. *Can. Exp. Farms Rpt.* 400. 1895.

Originated by William Saunders, Ottawa, Canada. Plants weak, unproductive; bunches short; berries small, of fair quality; midseason.

Climax. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Originated by William Saunders, London, Ontario, about 1887, from a seedling of Naples. Plants vigorous, productive; bunches large; berries large, with thick skin, briskly subacid; good; midseason.

Clipper. 1. *Can. Cent. Exp. Farm Bul.* **56**:18. 1907.

Another variety raised by William Saunders from a seedling of Naples about 1887. Plants vigorous, productive; bunches large; berries large, with moderately thick skins, tender, briskly subacid; good; midseason to late.

Collins Prolific. 1. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907.

A variety of Canadian origin which is considered of value commercially. Plants vigorous, productive; bunches large; berries large, with thick skin, acid; fair; late.

Common Black. 1. *Am. Pom. Soc. Cat.* 94. 1862. 2. *N. Y. Sta. Bul.* **95**:430, Pl. V, fig. 20. 1895.

Black English. 3. Kenrick *Am. Orch.* 292. 1832.

Cassis Commun. 4. *Soc. Nat. Hort. France Pom.* 226, fig. 1904.

English. 5. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907.

An ancient English variety once commonly grown. On the grounds of this Station the plants are spreading, vigorous and productive; fruit variable, averaging medium in size, acid and strongly flavored; ripens unevenly.

Crandall. 1. *Gard. Mon.* **29**:305. 1887. 2. *Am. Gard.* **10**:309, fig. 1889. 3. *U. S. D. A. Rpt.* 441, Pl. III. 1889. 4. Bailey *Ev. Nat. Fruits* 401, fig. 103. 1898.

Crandall is the only representative of *Ribes odoratum* grown commonly in the United States. The variety is widely distributed throughout all parts of the country where currants can be grown as an ornamental of dooryards and parks. The tough skin and

BOSKOOP GIANT

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unpleasant flavor usually condemn it as a garden plant, but some like it, and since it succeeds in regions having hot summers, where most other currants fail, it is likely to be long kept under cultivation. The berries ripen so unevenly that they must be picked singly, which, of course, precludes its being a commercial plant. The bushes are usually unproductive, but a supposed productive strain is offered by some nurserymen. This currant is supposed to have originated by R. W. Crandall, Newton, Kansas, many years ago, from seed of a plant of a wild currant which he had found growing near his place. It was introduced in 1888 by Frank Ford & Sons, Ravenna, Ohio. In 1899 the American Pomological Society added the variety to its list of recommended fruits.

Plants of largest size, often 8 feet in height, very vigorous, upright, slightly spreading, very dense, usually unproductive but variable, healthy; young shoots light and dark brown, glossy, pubescent, numerous; leaf-buds tomentose, small, short, obtuse, moderately plump, appressed; leaves small, truncate at the base, with deeply and irregularly cut lobes, thin, deeply lobed, dull, light green, smooth, glabrous on both surfaces, pubescent on the margins and petiole, with coarsely dentate to deeply cut, serrate margins; petiole short, slender, pubescent, light green. Flowers midseason, large, partly closed, golden yellow, in short, dense, few-flowered, fragrant clusters; calyx-tube yellow, long-obconic, almost cylindrical, glabrous; calyx-lobes oblong, medium in width and thickness, glabrous, yellowish; petals usually red-tipped, above medium in size, serrate; ovary glabrous. Fruit very late, period of ripening unusually long; clusters very short, loose, 1–4 berries; cluster-stems short, thick; berry-stems long, medium thick, pubescent; berries variable in size, small to very large, roundish oblate to slightly obovate, borne either singly or in ones and twos, seldom threes or fours, with leafy bracts, drop when ripe, smooth, glossy bluish black, tipped with a very long calyx; skin smooth, very thick, tough, opaque; flesh greenish yellow, not very juicy, somewhat soft, seedy, sprightly to rather tart, with a strong, unpleasant taste; quality poor to fair.

Daniels September. 1. Daniels Bros. *Cir.* 1924.

Found in an English garden about 10 years ago by Daniels Brothers, Norwich, England, who introduced it in 1923. Fruit large, borne in long clusters, among the latest to ripen.

Deseret. 1. Fuller *Sm. Fr. Cult.* 199, fig. 84. 1867.

Originated in Utah and supposed to be a strain of the Missouri Black, *R. odoratum*. Plants vigorous, rapid growing, productive; fruit large, round, black or dark violet, with slight bloom, pleasantly subacid.

Dominion. 1. *Can. Exp. Farms Rpt.* 399. 1895.

A seedling raised by William Saunders, London, Ontario, about 1887. Plants of moderate vigor, productive; bunches long; berries of medium size, austere, acid; midseason.

Eagle. 1. *Can. Exp. Farms Rpt.* 400. 1895. 2. *Am. Pom. Soc. Rpt.* 287. 1921.

Raised from a seedling of Naples prior to 1887 by William Saunders, London, Ontario. Plants vigorous, productive; bunches large; berries large, briskly subacid; fair; midseason.

Ethel. 1. *Can. Cent. Exp. Farm Bul.* **56**:18. 1907.

Originated about 1887 by William Saunders, London, Ontario. Plants vigorous, productive; bunches large; berries large; skin thick; briskly subacid; good; midseason.

Goliath. 1. Bunyard *Cat.* 28. 1923.

Plants upright; bunches short, compact; berries medium to large, unusually sweet for a black currant.

Grape. 1. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907.

As grown in Canada this sort is distinct from Black Grape. Plants vigorous, spreading, unproductive; bunches medium in size; berries large, briskly subacid; good; midseason.

Henry. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Originated prior to 1887 by William Saunders, London, Ontario. Plants moderately vigorous; bunches short; berries large, with a mild, pleasant flavor.

Ismay Prolific. 1. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907.

Plants moderately vigorous, unproductive; bunches small; berries medium in size, briskly subacid; good; late.

James Prolific. 1. *Jour. Roy. Hort. Soc.* **22**:203. 1898.

A vigorous grower and light cropper; clusters short; berries of medium size, black; fair in quality.

Jelly. 1. *N. Y. Sta. Bul.* **95**:433, fig. 24. 1895.

This is a variety of *R. odoratum* which probably originated in Utah many years ago. As grown at this Station the plants are tall and upright; fruit borne in small clusters with leafy bracts; berries varying from medium in size to very large; skin thick, tough, bluish black; peculiarly flavored but more agreeable in taste than the ordinary European black currants.

Kentish Hero. 1. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907.

Plants moderately vigorous and productive, spreading; bunches medium in size; berries varying from medium to large; skin thick, acid; fair; ripens unevenly from midseason to late.

Kentville. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Originated about 1885 by William Saunders, London, Ontario. Plants vigorous; bunches medium in size; berries large, pleasantly flavored, sweet; midseason.

Kerry. 1. *Can. Cent. Exp. Farm Bul.* **56**:18. 1907.

One of Saunders' seedlings from a seedling of Naples. Plants vigorous, very productive; bunches large; fruit large; skin thick, tender; briskly subacid, good; midseason to late.

Lanark. 1. *Can. Exp. Farms Rpt.* 400. 1895.

Another of Saunders' seedlings from London, Ontario. Plants weak growers, unproductive; bunches short, with small berries; midseason.

Lee. 1. *N. Y. Sta. Bul.* **95**:430, Pl. V, fig. 17. 1895.

Lee's Prolific. 2. *Gard. Chron.* 145. 1870.

Lee's Black. 3. *Gard. Mon.* **19**:305. 1877.

Raised about 1860 by George Lee, a market gardener, of Clevedon, Somerset, England. The variety was brought to America many years ago where it has been widely disseminated. In 1883 the American Pomological Society added it to the fruit catalog list. Grown at

this Station the plants are medium in size, vigorous, upright-spreading, productive; fruit borne in short, thick clusters, of medium size; berries large, roundish, dull black, with thin skin, sprightly; good; midseason.

Lennox. 1. *Can. Exp. Farms Rpt.* 399. 1895.

A seedling raised by William Saunders, London, Ontario, prior to 1887. Plants vigorous, productive; bunches of medium length; berries small; of fair quality; early.

Lewis. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Another of Saunders' seedlings; growth rather weak, unproductive; bunches of medium length; berries small, black, and of poor quality; midseason.

London. 1. *Can. Exp. Farms Rpt.* 400. 1895.

One of Saunders' seedlings. Plants moderately vigorous, productive; berries of medium size, in rather small clusters; good; midseason.

Louise. 1. *Can. Exp. Farms Rpt.* 400. 1895.

Another seedling raised by William Saunders. Plants vigorous, productive; fruit large, borne in long clusters; good; early.

Magnus. 1. *Can. Cent. Exp. Farm Bul.* **56**:18. 1907.

Raised by William Saunders, London, Ontario, prior to 1887. Plant vigorous, very productive; clusters of medium size; berries large; skin thick; subacid; good; midseason.

Merveille de la Gironde. 1. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907. 2. Bunyard *Cat.* 26. 1924.

Possibly of French origin. Plants vigorous, productive; bunches medium in size; berries medium; skin thick; briskly subacid; good; ripens unevenly from midseason to late.

Middlesex. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Another seedling raised by Saunders. Plants vigorous, productive; bunches long, well filled; berries small, mild, rather sweet; good; midseason.

Missouri Black. 1. Fuller *Sm. Fr. Cult.* 200. 1867.

This is an old variety of *R. odoratum* which originated in the Rocky Mountain region and from which several varieties of currants have originated. It is of little value except as an ornamental; the berries are large, jet black, hard dry, and bitter.

Monarch. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Raised by William Saunders, London, Ontario, prior to 1887. A strong, productive grower, bearing large, uniform, pleasantly flavored berries in medium-sized clusters; midseason.

Naples. 1. *N. Y. Sta. Bul.* **95**:430, Pl. V, fig. 16. 1895. 2. Hedrick *Cyc. Hardy Fr.* 306, fig. 269. 1922.

Black Naples. 3. *Pom. Mag.* **1**:43, Pl. 1828.

Cassis Royal de Naples. 4. *Pom. France* **8**:No. 2, Pl. 2. 1873.

Neapolitanische Schwarze. 5. Lucas-Oberdieck *Ill. Handb. Obst.* **7**:276. 1875.

Possibly Naples is the most commonly grown black currant in America. Previous to the law compelling the cutting out of black currants, it was more generally grown in New York than any other kind. It does not, however, deserve its popularity, as the clusters and berries are exceedingly variable in size, the clusters are usually small, the flavor and aroma too pronounced to be pleasant, and the plants are not always productive. The variety has a characteristic habit of bearing its buds on short clusters well distributed over the canes. This is a European variety the origin of which is unknown. It was long a standard in England where it was quite generally distributed more than a century ago. It was brought to America early in the nineteenth century where it has been widely disseminated. The variety was added to the fruit catalog list of the American Pomological Society in 1852 under the name Black Naples. In the recent Society catalogs the name has been shortened to Naples.

Plants large, very vigorous, upright-spreading, very dense, unproductive, healthy; young shoots medium in number, the bark broken and netted irregularly and longitudinally, showing darker brown beneath; leaf-buds tinged red, large, long, obtuse, plump, free; leaves large, cordate at the base, with short-pointed lobes, dull, light green, rugose, glabrous, with slightly hairy, coarsely serrate margins; petiole short, green, tinged with red, pubescent. Flowers very late, partly closed, large, dull greenish red, with a grayish cast due to the pubescence present, in short, medium dense and drooping, few-flowered clusters; calyx-tube greenish, sometimes with a slight red tinge, campanulate, heavily pubescent, resinous; calyx-lobes oblong, medium in width and thickness, acute, pubescent, with tinges of dull red; ovary resinous, pubescent. Fruit very late; clusters short, loose, tips well filled; 4–8 berries; cluster-stems medium in thickness and length; berry-stems long, usually with 1 or 2 bractlets at attachment to the berry, with large bracts; berries variable, small to large, round, black, dull; skin glandular, tough, opaque; flesh light green, almost colorless, juicy, rather acid, aromatic; quality fair.

North Holland Black. 1. Bunyard *Cat.* 26. 1921.

A variety closely resembling Merveille de la Gironde except that the clusters are shorter.

Norton. 1. *Can. Cent. Exp. Farm Bul.* **56**:18. 1907.

Originated by William Saunders about 1887. Plants strong, vigorous, spreading, moderately productive; bunches short; berries medium, briskly subacid; fair; ripen unevenly from midseason to late.

Ontario. 1. *Can. Cent. Exp. Farm Bul.* **56**:18. 1907.

Another of Saunders' seedlings. Plants vigorous, very productive; bunches long; berries medium with thick skin, tender, briskly subacid; good; midseason.

Orton. 1. *Can. Cent. Exp. Farm Bul.* **56**:19. 1907.

Still another of Saunders' seedlings. Plants moderately vigorous, unproductive; bunches medium; berries large, with thick skin, subacid, well flavored; good; ripens unevenly but usually in midseason.

Oxford. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Raised by William Saunders. A vigorous grower, bearing medium-sized fruit in long, well-filled clusters; fair; midseason.

Parker. 1. *Can. Exp. Farms Rpt.* 399. 1895.

A weak growing, unproductive seedling raised by Saunders; berries small, strongly flavored, borne in short clusters; midseason.

Pearce. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Another Saunders' seedling lacking vigor but productive; berries borne on long clusters, large, with a pleasant, mild, sweet flavor; midseason.

Prince. 1. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907.

A rather vigorous but unproductive grower; bunches small; berries medium to large, briskly subacid, medium quality; late.

Prince of Wales. 1. *Gard. Mon.* **7**:119. 1865. 2. *N. Y. Sta. Bul.* **95**:430, fig. 21. 1895. *Wales.* 3. *Can. Cent. Exp. Farm Bul.* **56**:17. 1907.

It is uncertain whether this currant originated in Canada or England. The variety has been known in America for more than sixty years. In 1897 the American Pomological Society added the sort to its fruit catalog list. On the Station grounds the plants are vigorous, very productive; bunches small; berries vary from small to large, with a fairly mild, pleasant flavor, becoming quite sweet at maturity; good; late.

Resister. 1. Bunyard *Cat.* 26. 1921.

This variety was introduced in England in 1907. It is said to resist effectively attacks of the currant gall mite which is popularly called " big bud."

Ruler. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Raised by William Saunders, London, Ontario. prior to 1887. Plants vigorous, productive; bunches short; berries medium in size; inferior in quality; midseason.

Saunders. 1. *Mich. Sta. Bul.* **67**:19. 1890. 2. *N. Y. Sta. Bul.* **95**:431. 1895.

Originated by William Saunders, London, Ontario, prior to 1887. The name was added to the American Pomological Society's list of recommended fruits in 1897. As grown at this Station the plants are vigorous, productive; berries borne in medium-sized clusters, vary from small to large; skin thick; mildly acid; good; midseason.

Seabrook Black. 1. Bunyard *Cat.* 26. 1921.

This variety was introduced by W. Seabrook & Son, Chalmsford, England, in 1913. It closely resembles Merveille de la Gironde except that the clusters are thicker.

Siberian. 1. Bunyard *Cat.* 26. 1921.

This variety was introduced into England many years ago by H. J. Elwes, who found it as a wilding near the Altai Mountains in Siberia. It is noteworthy on account of the large size of the berries.

Standard. 1. *Can. Cent. Exp. Farm Bul.* **56**:19. 1907.

Raised by William Saunders, London, Ontario, about 1887. Plants vigorous, unproductive; bunches small; berries large, pleasantly flavored, subacid; good; midseason.

Star. 1. *Can. Exp. Farms Rpt.* 400. 1895.

This is a Saunders' seedling which has proved to be a weak and unproductive grower; bunches short; berries small, mildly and pleasantly flavored; midseason.

Stewart. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Another seedling raised by Saunders. Plants weak, unproductive; bunches short; berries small; poor; early.

Stirling. 1. *Can. Exp. Farms Rpt.* 399. 1895.

This is a Saunders' seedling, which is moderately vigorous, and whose fruits, borne in long clusters, are small, pleasantly flavored, and ripen in midseason.

Success. 1. *Can. Exp. Farms Rpt.* 399. 1895.

Another Saunders' seedling. Plants vigorous, productive; bunches medium in length; berries medium, very sweet, with a pleasant flavor; good; midseason.

Sweet Fruited Missouri. 1. Fuller *Sm. Fr. Cult.* 201. 1867.

Found in the mountains of Utah many years ago. It is a slight improvement over the native American Black. Berries large, roundish oval, in small clusters, sweet, with a musky flavor.

Thoburn. 1. *Am. Pom. Soc. Rpt.* 208. 1922.

Found in western Oklahoma and in the mountains of Colorado by J. B. Thoburn, former Secretary of Agriculture, introduced by the Noble Nursery Company, Noble, Oklahoma. The plants closely resemble *R. americanum* and are hardy and productive; berries rarely black, but varying in color from dull red, bright yellow, yellow with red stripes, and greenish amber; of good quality and excellent for pies, jellies, and preserves.

Topsy. 1. *Ont. Fr. Gr. Assoc. Rpt.* 79. 1902. 2. *Can. Cent. Exp. Farm Bul.* **56**:18. 1907.

This variety was raised about 1890 by William Saunders, Ottawa, Canada. It is a hybrid between a so-called Dempsey's Black currant and a seedling of the Houghton gooseberry. From this cross five plants grew, four of which had gooseberry foliage, and one, Topsy, black currant foliage and fruit. Plants vigorous, moderately productive; bunches large; berries large, with thick skin, briskly subacid, with a pleasant flavor; good; midseason.

Utah Black. 1. *Gard. & For.* **3**:375. 1890.

Rather widely disseminated many years ago, as an ornamental. Supposed to be a seedling of Missouri Black and an improvement over that sort. So very similar if not identical to Crandall that a further description is unnecessary.

Winona. 1. *Can. Cent. Exp. Farm Bul.* **56**:19. 1907.

Raised by William Saunders, Ottawa, Canada. Plants moderately vigorous, productive; bunches small to medium; berries large, subacid; good; early.

Wood. 1. *Can. Exp. Farms Rpt.* 400. 1895.

Another of Saunders' seedlings. Plants vigorous, productive; bunches long; berries of medium size, acid but pleasantly flavored; good; midseason.

CHAPTER XII

THE EVOLUTION OF CULTIVATED GOOSEBERRIES

The gooseberry, like the currant, is a modern garden plant, although it was doubtless known to all the peoples of Europe and western Asia. The species from which the present garden inhabitant comes grows wild throughout temperate Europe and Asia and in the mountains of Greece, Italy, Spain, and northern Africa. The Greeks and Romans do not mention gooseberries. To them, no doubt, with an abundance of grapes and a great variety of luscious tree fruits, the small, tart, astringent, wild gooseberry did not seem worth domesticating; nor could it have been well grown about the Mediterranean except in high altitudes. The gooseberry requires a low temperature to bring it to perfection, and cold must sharpen the appetites of those who would relish the austere taste of the first garden gooseberries.

The gooseberry of history is well grown only in the Old World. Early settlers in America from England and Holland tried its culture here but the hot dry American summers parched and withered both fruit and foliage. Moreover, it was subject to a native mildew which, before preventive and remedial sprays were introduced, made short work of European gooseberries in America. A few of the several hundred varieties grown in Europe vicariously grow in favored gardens in northeastern United States and adjacent parts of Canada, but nowhere in the New World is the European gooseberry a commercial success.

A native American gooseberry has been domesticated, however, and a few of its pure-bred varieties and a much greater number of its hybrids have been cultivated in gardens and commercial plantations on this side of the Atlantic. The native wild gooseberries, than which the cultivated sorts of the species are scarcely superior, must of course, have been used by early settlers in the country wherever the plants grew wild, and no doubt wild plants were occasionally grown by American pioneers in gardens, but true domestication of the species seems not to have been attempted until less than a hundred years ago. But before discussing this native gooseberry further, something must be said of the origin, history, and present status of the European gooseberry.

THE EUROPEAN GOOSEBERRY

The European gooseberry might almost be said to be a British fruit, because more commonly cultivated, used, and more highly esteemed in Great Britain than in any other part of the world. Yet the Scandinavians, Danes, Dutch, and Germans grow many varieties and pay much attention to gooseberry culture. It can never be known in which of the northern European countries the gooseberry first became common as a garden plant. Very possibly, almost without doubt, wild plants were fostered if not actually cultivated in gardens in all of these northern countries in the early stages of agriculture and their domestication took place in all and at presumably about the same dates since agriculture progressed apace in all. For the purposes of this text, therefore, it suffices as well to trace briefly its history in England as to attempt a more complete historical account.

The reign of Queen Elizabeth, 1533–1603, was a golden age in English gardening as well as in science, art, and literature. Explorers from the new world brought many new and useful plants; persecuted Protestants from the continent seeking refuge in England introduced new methods of culture and a love of gardens; and books about plants, herbals, botanies, Bacon's famous essay, and several noteworthy treatises on agriculture, all mark this as a period of great activity in the arts of plant growing. The gooseberry first appeared in Elizabethan gardens, at least as a common plant, according to the old garden books.

Turner, 1548, seems to be the first of the English garden writers to mention the gooseberry, thereby starting a misunderstanding that has caused much discussion down to our own day. He says: " It groweth only that I have sene in England, in gardines, but I have sene it in Germany abrode in the fields among other bushes." Is the gooseberry indigenous to England or was it brought to English gardens from the continent? Probably Turner was not a scientific reporter for the weight of authority is distinctly on the side of its being a native of England as well as of the continent.

Thomas Tusser, 1573, the poet, farmer, and vagabond, whom every pomological historian must quote, gives a list of fruits to be transplanted in January in which he includes " Goose beries," and in his *Five Hundred Pointes of Good Husbandrie* under *September's husbandrie*, mentions the gooseberry in one of his verses.

> " The Barbery, Respis, and Gooseberry too
> Looke now to be planted as other things doo.
> The Gooseberry, Respis, and Roses, al three
> With strawberries under them trimly agree."

John Parkinson,[1] the best horticultural authority for the period during which he maintained his famous garden in London and wrote his great herbal, apothecary to James I and botanist to Charles I, furnishes the first full account of gooseberries in his *Paradisi in Sole*, 1629. Let us see what the gooseberry was, and what its uses in English gardens 300 years ago.

"GOOSEBERRIES OR FEABERRIES

"Wee have divers sorts of Gooseberries, besides the common kinde, which is of three sorts, small, great, and long. For wee have three red Gooseberries, a blew and a greene.

"The common Gooseberrie, or Feaberrie bush, as it is called in divers Countries of England, hath oftentimes a great stemme, covered with a smooth darke coloured bark, without anie thorne thereon, but the elder branches have here and there some on them, and the younger are whitish, armed with verie sharpe and cruell crooked thorns, which no mans hand can well avoide that doth handle them, whereon are set verie greene and small cornered leaves cut in, of the fashion almost of Smallage, or Hawthorne leaves, but broad at the stalke; the flowers come forth single, at everie joint of the leafe one or two, of a purplish greene colour, hollow and turning up the brims a little: the berries follow, bearing the flowers on the heads of them, which are of a pale greene at the first, and of a greenish yellow colour when they are ripe, striped in divers places, and cleare, almost transparent, in which the seede lyeth. In some these berries are small and round; in others much greater; a third is great, but longer than the other: all of them have a pleasant winie taste, acceptable to the stomacke of anie (but the long kinde hath both the thicker skin and the worser taste of the other) and none have been distempered by the eating of them, that ever I could hear of.

"The first of the red Gooseberries is better knowne I thinke then the rest, and by reason of the small bearing not much regarded; the stemme is somewhat bigge, and covered with a smooth darke coloured barke, the younger branches are whiter, and without anie thorne or pricke at all, so long, weake, small, and slender, that they lye upon the grounds, and will there roote againe: the leaves are like unto the former Gooseberries, but larger: the flowers and berries stand single, and not manie to bee found anie yeare upon them, but are somewhat long, and are as great as the ordinarie Gooseberry, of a darke brownish red colour, almost blackish when they are ripe, and of a sweetish taste, but without any great delight.

"The second red Gooseberry riseth up with a more straight stemme, covered with a brownish barke; the young branches are straight likewise, and grow not so thicke upon it as the former red kinde, and without any

[1] Parkinson, John *Par. Ter.* 560. 1629.

thorne also upon them: the leaves are like unto the former red, but smaller; the berries stand singly at the leaves as Gooseberries doe, and are of a fine red colour when they are ripe, but change with standing to be of a darker red colour, of the bignesse of the small ordinary Gooseberry, of a pretty tart taste, and somewhat sweete withall.

"The third red Gooseberry which is the greatest, and knowne but unto few, is so like unto the common great Gooseberry, that it is hardly distinguished: the fruit or berries grow as plentifully on the branches as the ordinary, and are as great & round as the great ordinary kinde, but reddish, and some of them paler, with red stripes.

"The blew Gooseberry riseth up to bee a bush like unto the red Curran, and of the same bignesse and height, with broader and redder leaves at the first shooting out, then the second red Gooseberry: the berries are more sparingly set on the branches, then on the small red, and much about the same bignesse, or rather lesser, of the colour of a Damson, with an overshadowing of a blewish colour upon them, as the Damson hath, before it be handled or wiped away.

"The greene prickly Gooseberry is very like unto the ordinary Gooseberry in stemme and branches, but that they are not stored with so many sharpe prickles; but the young shootes are more plentifull in small prickles about, and the greene leafe is a little smaller: the flowers are alike, and so are the berries, being of a middle size, and not very great, greene when they are thorough ripe as well as before, but mellower, and having a few small short prickles, like small short haires upon them, which are harmlesse, and without danger to anie the most dainty and tender palate that is, and of a very good pleasant taste. The seede hereof hath produced bushes bearing berries, having few or no prickles upon them.

"THE USE OF GOOSEBERRIES

"The berries of the ordinary Gooseberries, while they are small, greene, and hard, are much used to bee boyled or scalded to make sawce, both for fish and flesh of divers sorts, for the sicke sometimes as well as the sound, as also before they bee neere ripe, to bake into tarts, or otherwise, after manie fashions, as the cunning of the Cooke, or the pleasure of his commanders will appoint. They are a fit dish for women with childe to stay their longings, and to procure an appetite unto meate.

"The other sorts are not used in Cookery that I know, but serve to bee eaten at pleasure; but in regard they are not so tart before maturity as the former, they are not put to those uses they be."

We have in the gooseberry an unusually good opportunity to trace the evolution of a fruit brought under the hand of man from the wild. To see satisfactorily how the gooseberry has been improved we must quote at

considerable length from several pomological writers from Parkinson to the present time. The next Englishman to write at length of gooseberries was John Rea,[1] gardener and author, who published his *Flora, Ceres & Pomona* in 1665. Under the chapter heading *Grossularia*, Rea says:

"*Goosberries* are of divers sorts and colours, as red, blue, yellow, white, and green; some of them round, others long; some smooth, and others prickly.

"Of *red Goosberries* there are three sorts, one small and round, seldom bearing; another bigger and a little flat, but no very good bearer; the third is called the *Damson Goosberry*, this is a good bearer, the Berries large, round, and red, and (when full ripe) with a blue tincture over them like a *Damson*.

"*The blue Goosberry* hath the Berries thinly set on the branches, which are small, a little long, and of a dark red colour, tinctured over with blue.

"*Yellow Goosberries* are of several sorts, one large, round, and smooth; others lesser; some long and prickly, of which there are two sorts chiefly esteemed; the first round, smooth, large and good, of a bright yellow colour, and called the *Amber Goosberry;* the other is large, long, and prickly, of a deep yellow colour and good taste, and is called the *great Hedge-hog Goosberry*.

"*The white Holland Goosberry* is the fairest, biggest, and best bearer of all others; the Berries are large, round, smooth, white, transparent, and well-tasted.

"*The green Goosberry* is of two sorts, one bigger and longer than the other, both very green and good, but the bigger is most esteemed."

Skipping a hundred years and a little more, thereby passing over a number of excellently written English agriculture books which have more or less to say about gooseberries, let us take as the next author who describes gooseberries, Mawe. In his *Dictionary of Gardening and Botany*, 1778, Mawe[2] describes 24 gooseberries as follows:

"*Varieties of the different species.* Many varieties of Gooseberries have been raised from seeds; some having round berries, others oval; some hairy and some smooth, and of different colours, as Red — Green — Yellow — White, &c. consisting of the following varieties of each sort.

"*Red Kinds.*— Hairy Red Gooseberry — Smooth Red Gooseberry — Deep Red Gooseberry — Damson, or Dark-red Blueish Gooseberry — Red Raspberry Gooseberry — Early Black-red Gooseberry.

"*Green Kinds.*— Hairy Green Gooseberry — Smooth Green Gooseberry — Green Gascoigne Gooseberry — Green Raspberry Gooseberry.

"*Yellow Kinds.*— Great oval Yellow Gooseberry — Great Amber Gooseberry — Hairy Amber Gooseberry — Early Amber Gooseberry.

"*White Kinds.*— Large White Crystal Gooseberry — Common White Gooseberry — White-veined Gooseberry.

[1] Rea, John *Flora* 3:230. 1665.

[2] Mawe-Abercrombie *Univ. Gard. Bot.* 1778.

"*Other Varieties of different Sorts.* Champaigne Gooseberry — Rumbullion Gooseberry — Large Ironmonger Gooseberry — Smooth Ironmonger Gooseberry — Hairy Globe Gooseberry — Large Tawney, or Great Mogul Gooseberry."

Mawe's descriptions are very brief and some of his "kinds" as he calls them are group rather than varietal names. They furnish the information we want as regards the fruits, however, as we shall find in the summing up to determine when certain characters of gooseberry fruits first appeared. The improvement of the gooseberry in England from this time on goes forward in leaps and bounds. The *Catalog of Fruits of the Horticultural Society of London* for 1825 lists 185 varieties as growing in the garden of the society, while Lindley in his *Guide to the Orchard and Kitchen Garden* gives a list of 722 varieties.

There need be no further concern about the number of English gooseberries — the number now probably runs into four figures — but it should be of interest and profit to know what the characters of the modern gooseberry are. Perhaps we can get this information best by using the fifth and last edition of Hogg's admirable *Fruit Manual*, 1884, in which the following characters are set forth:

Color; red, yellow, green, white. Shapes; round or roundish, oblong, oval, obovate. Skin; smooth, downy, rough or hairy, with or without bloom. Fruits; two- or three-veined. Size; large, small, medium. Season; early, late, medium. Flavors; sweet or sour.

A careful reading of Parkinson and Rea, with some allowance for changes in terms and styles of description, shows almost certainly that gooseberries grown three centuries ago possessed all of the characters that they now have or had when Hogg wrote in 1884, excepting, possibly, the great size of the berries of modern varieties. It seems almost certain that a study of the history and botany of the gooseberry would show that all of the types now in gardens existed in nature and were brought into gardens and thus described as our early pomologists found them.

The breeders of gooseberries, then, have been able to add no new characters to this fruit excepting size and the succulency that follows. The changes in color, season, flavor, shape, and degrees of smoothness and hairiness have all come from hybridizing and crossing. This digression is made because the gooseberry illustrates particularly well what seems to be true of all our fruits, namely, that cultivation and the protective influence of man plays small part or no part in the improvement of fruits except in

increased quantity and larger size of the product. Amelioration comes rather through intercrossing of species. Different fruits respond very differently as to increase in size. The currant, sour cherry, Damson plums, and crabapples have not been greatly enlarged through cultural care given by man. The apple, pear, peach, domestica plums, grapes, bramble fruits, strawberries, and gooseberries have increased in size enormously under cultivation. Let us take the fruit in hand, the gooseberry, as an example.

Darwin, *Animals and Plants under Domestication* 1:378. 1893, made a study of the increase in the size of gooseberries. He says:

"Manchester is the metropolis of the fanciers, and prizes from five shillings to five or ten pounds are yearly given for the heaviest fruit. The 'Gooseberry Grower's Register' is published annually; the earliest known copy is dated 1786, but it is certain that meetings for the adjudication of prizes were held some years previously.[1] The 'Register' for 1845 gives an account of 171 Gooseberry Shows, held in different places during that year; and this fact shows on how large scale the culture has been carried on. The fruit of the wild gooseberry is said[2] to weigh about a quarter of an ounce or 5 dwts, that is, 120 grains; about the year 1786 gooseberries were exhibited weighing 10 dwts., so that the weight was then doubled; in 1817 26 dwts. 17 grs. was attained; there was no advance till 1825, when 31 dwts. 16 grs. was reached; in 1830 'Teazer' weighed 32 dwts. 13 grs.; in 1841 'Wonderful' weighed 32 dwts. 16 grs.; in 1844 'London' weighed 35 dwts. 12 grs., and in the following year 36 dwts. 16 grs.; and in 1852, in Staffordshire, the fruit of the same variety reached the astonishing weight of 37 dwts. 7 grs.,[3] or 896 grs.; that is, between seven or eight times the weight of the wild fruit. I find that a small apple, $6\frac{1}{2}$ inches in circumference, has exactly this same weight. The 'London' gooseberry (which in 1852 had altogether gained 333 prizes) has, up to the present year of 1875, never reached a greater weight than that attained in 1852. Perhaps the fruit of the gooseberry has now reached the greatest possible weight, unless in the course of time some new and distinct variety shall arise.

"This gradual, and on the whole steady increase of weight from the latter part of the last century to the year 1852, is probably in large part due to improved methods of cultivation, for extreme care is now taken; the branches and roots are trained, composts are made, the soil is mulched, and only a few berries are left on each bush;[4] but the increase no doubt is in

[1] Mr. Clarkson, of Manchester, on the Culture of the Gooseberry, in Loudon's "Gardener's Magazine," vol. iv. 1828, p. 482.

[2] Downing's "Fruits of America," p. 213.

[3] "Gardener's Chronicle," 1844, p. 811, where a table is given; and 1845, p. 819. For the extreme weights gained, *see* "Journal of Horticulture," July 26, 1864, p. 61.

[4] Mr. Saul, of Lancaster, in Loudon's "Gardener's Mag.," vol. iii. 1828, p. 421; and vol. x. 1834, p. 42.

main part due to the continued selection of seedlings which have been found to be more and more capable of yielding such extraordinary fruit. Assuredly the 'Highwayman' in 1817 could not have produced fruit like that of the 'Roaring Lion' in 1825; nor could the 'Roaring Lion,' though it was grown by many persons in many places, gain the supreme triumph achieved in 1852 by the 'London' Gooseberry."

AMERICAN GOOSEBERRIES

The gooseberry is not a popular fruit in America. The climate is not favorable to the delectable European varieties and fungi take so great toll that where climate may favor fungi forbid. Moreover, the abundance of bramble fruits, strawberries, and early tree fruits in the season for gooseberries lessens the need of an additional fruit for the diet of the season. Nurserymen, also, with curious persistence, seem favorable only to the small-fruited and inferior Houghton and Downing, wretched substitutes for the large-fruited varieties which it has been demonstrated over and over again might as easily be grown.

Yet Nature has been lavish in supplying the continent with wild gooseberries. Some one of the several species is to be found in almost every part of this continent where agriculture prospers. But it is only within recent years that these have been brought to the attention of experimenters. The first gooseberry to be derived from a native species was the Houghton, first recorded in 1847, although it may have been introduced a few years earlier. It is certain that American varieties were grown long before this, however, for in 1839 John J. Thomas,[1] then a youth, afterwards to become a leading authority in pomology, wrote:

" The gooseberry is cultivated with greater care and success in England than elsewhere; and Lindley enumerates 722 varieties, some of which have furnished specimens of single fruit weighing an ounce and a half. But nearly all the English varieties, and especially those of large size, are wholly unadapted to culture in this country on account of mildew; and neither culture, pruning, nor any other remedy has been found that can be relied on as a remedy. There are some smaller native varieties, cultivated in gardens in this country, which are entirely free from it, and these alone are to be recommended here. Sufficient information however as to their names, has not been obtained for a list to be given. Some of the *smaller* of the English varieties, when tested in this climate, may be found worthy of cultivation."

Yet native gooseberries received scant attention in gardens before 1850.

[1] *Mon. Gen. Farmer* 4:114. 1838.

At no time in the history of the country was pomology a matter of wider and more common concern to people on the land and in cities than this. But the pomological books, magazines, societies, exhibitions, and the efforts of individuals a hundred years ago and several decades after were directed toward the introduction of foreign fruits rather than the domestication of native fruits and the breeding of American varieties. The progress America has made in domesticating native fruits and the adaptation of varieties of European fruits to American environments, remarkable achievements in the history of agriculture, came after 1850.

In the first edition of his *American Fruit Culturist*, 1846, Thomas does not mention the Houghton or any other American variety of the gooseberry. Not until the fourth edition, 1850, does it find a place in his book, and Downing in *Fruits and Fruit Trees* does not mention it until the edition of 1860. Yet, as its history, given in the discussion of the variety in Chapter XIII shows, it must have been widely grown at this time.

In common with other European fruits, European gooseberries were now recognized as failures on this side of the Atlantic, and far-sighted pomologists were recommending the domestication and breeding of fruits and varieties adapted to American conditions. In 1847, Hovey,[1] a veteran pomological writer, had this to say of gooseberries in his admirable *Magazine of Horticulture:*

"*Houghton's Seedling Gooseberry.*— The exhibition of some very fine specimens of this variety, at a late meeting of the Horticultural Society, reminds us that we have neglected to notice it before. The great difficulty attending the growth of the large and fine sorts of English gooseberries is, that, in most localities, the berries are rendered worthless by the attacks of mildew; and the consequent disappointment has induced many to give up their cultivation altogether. Mr. Houghton's gooseberry is a seedling from our native kind, produced some time ago and is considerably cultivated in Lynn, where Mr. Houghton resides. It is of only moderate size, but possesses a fine flavor, is a most extraordinary bearer and in all seasons is remarkably free from mildew. The specimens which we have seen, induce us to recommend it for general cultivation, especially in situations where the large English sorts cannot be grown. We have no doubt, that with proper attention in the selection of seeds from the largest berries, other and improved sorts may be raised from this, and eventually a progeny of large fruited kinds, equal to the English, but possessing all the adaptation to our variable climate of the parent plant. We trust our hints may be acted upon by amateurs who have the leisure to do so."

[1] *Mag. Hort.* 13:422. 1847.

Again, in 1850, Hovey[1] urges the improvement of the native gooseberry as follows:

"The attention of our cultivators is, we are glad to know, now being more directed to this fruit than heretofore, and efforts are making to produce seedlings of our wild gooseberry, which is not attacked with the mildew, of increased size and quality. The first advance has already been achieved in that prolific variety, Houghton's Seedling, and with this for a parent, we see no reason why we may not in a few years possess native kinds, equalling the foreign ones in size and excellence, and, at the same time, possessing all the hardy and easily cultivated properties of the variety we have just named. We have already quite a number of seedlings, and shall look forward to their fruiting with much interest."

These are but two of a considerable number of expressions in the horticultural press of the times calling attention to the desirability of raising seedling gooseberries from native species if the country were to have varieties worth growing. The work of domesticating the American gooseberry seems to have been taken up with considerable interest in several northern states where fruit growing flourished, and a number of new seedlings were shown as recorded in accounts of the fruit exhibitions of the times. Yet little came of gooseberry breeding for a reason easy to understand as we review the copious pomological literature of the last half of the last century. Raspberries, blackberries, dewberries, strawberries, grapes, and native plums gave quicker and more abundant returns to breeders of fruits than the gooseberry and so claimed the attention of pomologists. Among many treasures discovered in our domestic flora for development, the gooseberry seemed to the workers of the times of little importance.

Of the several seedlings immediately following Houghton, which we have set as the first landmark in the domestication of the American gooseberry, Downing is the only one noteworthy. It originated with Charles Downing about 1855, as a seedling of Houghton and immediately became popular. For seventy-five years it has been more commonly grown than any other variety of this fruit in the United States, although it ought long ago to have been discarded for any one of several better kinds which the country now offers. The following is the first discussion and description of the Downing, valuable also as showing the status of gooseberries at the time the article was written, and of further interest as coming from the pen of the noted European pomologist, Louis Berckmans who had some years before come to America to live. Mr. Berckmans[2] says:

[1] *Ibid.* 16:114. 1850.

[2] *Horticulturist* 12:462. 1857.

"Of all the foreign or native Gooseberries which we have had opportunities to taste, for some years past, from Canada to Delaware, no variety, in our opinion, can compare with Mr. Charles Downing's Seedling, obtained from the Houghton's seed some three years ago, establishing once more the fact once so startling to the pomological world — so much disputed and ridiculed — but, in our opinion, so perfectly logical, that 'the artificial products of nature improve by successive generations of seedlings.'

"The berries before us (which kept *ripe* for more than ten hot days without any sign of decay) are about double the size of the parent (Houghton's); pale, or light green, without any blush, and smooth. The skin is very thin, and the fruit as delicate and tender as any European Gooseberry, in its native soil. The flavor and aroma are perfect; sweet, with plenty of vinous subacid. In enjoying a goodly supply of these berries, we, for the first time for six years, could not regret the relative and very marked inferiority of the best English varieties in our very different climate.

"We experienced the same satisfaction as we did in the tasting the Delaware and Rebecca Grapes, coming up so very nearly to the European standard as to be almost taken for good foreign varieties.

"Let us have our *native* varieties of all kinds of fruit. Already the pear, the strawberry, the raspberry, and chiefly the apple, have come in handsome competition with, or superseded, their European relative varieties. We never could see, after those successful experiments, what could prevent us from having just as fine gooseberries, grapes, &c., and better, too, than the transatlantic products. Gentlemen amateurs! do try all kinds of seedlings; the *Phoenix* is yet in its 'ashes.' Patience alone, and (in the impressive words of our honored President, Col. Wilder) 'eternal vigilance,' can only bring out the desired results.

"Thanks to Mr. Charles Downing for his constant efforts. The present seedling is one out of a lot of seedlings from the Houghton, but it is the only superior one in quality and size, as it is one of the finest erect bushes among this family; a vigorous and sturdy grower.

"Like its parent, it seems rather more exempt from mould; we have indeed seen no disposition to moulding in any of these seedlings. We urged Mr. Downing to let it be propagated; but, as usual, his modesty is rather in the way of his love of progress and improvement."

Houghton, and therefore Downing, its seedling, are, as we have seen in the discussion of the botany of the gooseberry, hybrids between the native and the European species of this fruit. No pure-bred derivative of the several American wild gooseberries has ever come into prominence and but one, Pale Red, can now be found in gardens if, indeed, it is still to be found. Some ten or twelve other varieties may possibly be found in one part of the country or another in which the characters of the native species

are most prominent, but English gooseberries, or hybrids which show their characters more prominently than those of the natives, are more and more taking the place of Houghton and Downing by the few who give attention to this fruit. Fungicides keep the mildew in check and hybrids are being bred more resistant to it.

Meanwhile it cannot be said that the gooseberry is gaining in popularity in America. English varieties grown in America and the sorts which have originated here are far short of the European standards for this fruit, and with a greater wealth of home-grown and exotic fruits than any other part of the world, the gooseberry languishes in popular favor. American customs in using the fruit retard rather than enhance its popularity; the gooseberry is usually used here only in the green state and as a sauce, whereas the Europeans find ripe gooseberries as delectable as any other fruit for dessert. With these statements as to why gooseberries are not largely planted in the United States, let us see from the Census of 1920 what the country has in its gooseberry plantations.

Census figures show the gooseberry to be the least important of the five fruits discussed in *The Small Fruits of New York*. In the census of 1920 it is not sufficiently important to be given a separate classification, but is lumped under the heading of " Other berries " with the statement that these are chiefly gooseberries. Scattered plants of " other berries " brought into acreage figures in 1919 amount for the whole country only to 5,450 acres, 365 acres less than in 1909, or a loss of 6.7 per cent in the ten years.

What is the future of the gooseberry in America? The immediate future is not bright. The causes that have kept it from becoming a prominent fruit still exist. These are, to recapitulate, mildew, poor varieties, the use of green fruits to the neglect of ripe ones, and the disposition of nurserymen to push the sale of the Houghton and Downing to the exclusion of sorts with larger, handsomer, and better-flavored fruits. The last, it is certain, is the chief cause of the unpopularity, steadily increasing, of the gooseberry in this country. The gooseberry, more than any other berry, in America at least, is a home rather than a market fruit. Plants are supplied growers by nursery agents. The gooseberry will not become popular until, as in large parts of Europe, every garden is supplied with choicely good varieties instead of the two or three varieties now to be had with their thorny bushes and small, hard, sour, and insipid fruits.

CHAPTER XIII

VARIETIES OF GOOSEBERRIES

Alderman. 1. McIntosh *Bk. Gard.* **2**:579. 1855. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

On the Station grounds the plants are moderate growers, slightly susceptible to mildew; fruit large, green, shaded with pale red, somewhat hairy, sweet; good.

Alice. 1. *N. Y. Sta. Bul.* **114**:21. 1897.

In the Station gooseberry collection the plants are vigorous, free from mildew; fruit large, oblong, smooth, clear pale green, sweet; good.

Alma. 1. *Can. Cent. Exp. Farm Bul.* **56**:23. 1907.

A seedling of Downing originated by William Saunders, Ottawa, Canada. In Canada the plants are vigorous, unproductive, susceptible to mildew; fruit of medium size, oval to oblong, with thick skin, slightly downy, green, tinged with coppery red; fair.

Antagonist. 1. McIntosh *Bk. Gard.* **2**:579. 1855. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

As grown at this Station the plants are moderately vigorous, spreading, dwarfish, productive; fruit medium in size, oblong; skin thin, dull creamy white, hairy and covered with some bloom, mildly subacid; fair.

Apex. 1. *Mich. Sta. Bul.* **118**:22. 1895.

Originated in Oregon prior to 1890. Plants vigorous, resistant to mildew; berries large, greenish yellow; good.

Apology. 1. *Jour. Hort.* N. S. **3**:124. 1881. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

As grown at this Station the fruit is large, oblong, smooth, with thin skin, pale green, tinged with red; good.

Auburn. 1. *Mich. Sta. Bul.* **67**:21. 1890. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

An English variety introduced to this country by J. Elletson, Auburn, New York, who named it Auburn. Plants vigorous; fruit large, oblong, smooth; good.

Beauty. 1. *Jour. Hort.* N. S. **7**:150. 1864. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

As grown here the fruit varies from medium to large, oblong, pale red, smooth, pleasantly flavored; good.

Bendelon. 1. *Mich. Hort. Soc. Rpt.* 183. 1894.

In Michigan the plants are weak and subject to attacks of leaf diseases; fruit large, yellowish green; of fair quality.

Bennet Eureka. 1. *U. S. D. A. Pom. Rpt.* 394. 1891.

An English variety which was distributed by Dr. A. W. Thornton, West Ferndale, Washington. Fruit large, obovate or pear-shaped, dull green with a sharp acid flavor.

Berkeley. 1. Budd-Hansen *Am. Hort. Man.* **2**:435. 1903. 2. *Cal. Sta. Cir.* **164**:23. 1917.

In western fruit regions the plants are vigorous, productive, subject to mildew; fruit very large, oval, green, with reddish shades; very good. Placed in the recommended list of fruits in 1909 by the American Pomological Society.

Blucher. 1. *Jour. Hort.* N. S. **3**:124. 1881. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

As grown at this Station the plants are vigorous and productive; fruit very large, roundish oblong, nearly smooth, dark red with thin skin; very good.

British Queen. 1. *N. Y. Sta. Bul.* **114**:21. 1897.

On the Station grounds the plants are vigorous, productive and free from mildew; fruit small, roundish, dark green; skin thin, nearly smooth; sweet; good.

Briton. 1. *N. Y. Sta. Bul.* **114**:21. 1897.

In the Station plats the plants are moderately vigorous and productive; fruit medium to large, oblong, light yellow, with smooth, rather thick skin, sweet; good.

Broom Girl. 1. *Gard. Chron.* 612. 1843. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

At this Station the plants are vigorous, nearly free from mildew; fruit medium in size, roundish, smooth, yellowish green, nearly sweet; good.

Bull Dog. 1. *N. Y. Sta. Bul.* **114**:21. 1897.

On the Station grounds the plants lack vigor, but are free from mildew; fruit medium to large, oblong, red, nearly smooth; poor.

Bury Lane. 1. *Jour. Hort.* N. S. **29**:158. 1875. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

Plants at this Station are of medium vigor; fruit large to very large, oblong, pale green, smooth or nearly so, sweet; very good to best.

Candidate. 1. *Gard. Chron.* 868. 1864. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

As grown here the plants are moderately vigorous and mildew but little; fruit large, roundish oval, dark green, tinged with yellow, smooth: good.

Careless. 1. *Jour. Hort.* N. S. **7**:150. 1864. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

Plants at this Station are moderately vigorous and slightly inclined to mildew; fruit large, oblong, smooth, pale green, sweet; good.

Carman. 1. *Rural N. Y.* **51**:703. 1892. 2. Storrs & Harrison *Cat.* 158, fig. 1905.

Carman originated about 1890, with a Mr. Roberts, New York, New York, from seed which had been imported from England. The new seedling attracted the attention of E. S. Carman, editor of the *Rural New-Yorker*, who named and propagated it, and later, through the columns of his paper, offered to furnish plants to those who desired them. Soon after Storrs & Harrison, Painesville, Ohio procured the entire stock of Carman, and introduced it in 1905. Plants small, weak, upright-spreading, not very healthy, unproductive; fruit variable, medium to very small, roundish, dull yellowish green, moderately juicy, firm, sprightly becoming subacid; good; midseason.

Carrie. 1. *U. S. D. A. Yearbook* 379, Pl. 33. 1909. 2. Hedrick *Cyc. Hardy Fr.* 307. 1922.

In the northern part of the Mississippi Valley where only the hardiest fruits can be grown, Carrie is becoming a popular gooseberry because of its great hardiness. Plant and fruit are very much like those of Houghton but distinct, and Carrie does not deserve a place where the older sort grows well. The berries are too small, the plants are not quite free from mildew, and the thorny bushes bother greatly in harvesting the crop. Carrie originated with Wyman Elliot, Minneapolis, Minnesota, in 1893, from seed of Houghton, supposed to have been crossed with Industry. The variety was introduced in 1905 by Elliot

CARRIE

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& Redpath of Minneapolis. In 1909 the American Pomological Society added Carrie to its recommended list of fruits.

Plants very large, vigorous, spreading, dense, very productive, healthy; young shoots slender, of medium number, green, overlaid with reddish brown, overspread with dull gray scarf-skin; older wood branching but little, very slender, willowy; prickles small, strong, slender, average 3, smaller and almost absent on the older wood, with numerous short bristles between the nodes; leaf-buds narrow, small, long, conical, free; leaves of medium size, cordate, with deeply cut, obovate lobes, dark green, glossy, of medium thickness, variable in smoothness, with crenate or somewhat toothed margins; petiole medium in length, slender, greenish, pubescent. Flowers midseason, of medium size, 1–3, seldom 5, variable; pedicels of medium length and thickness, glabrous, greenish; calyx-tube green, glabrous; calyx-lobes medium in length, width and thickness, nearly glabrous, very light green with a faint tinge of red; ovary shiny, almost glabrous. Fruit midseason; very small but variable, roundish, often with a long meaty shank at the base, dull red mingled with gray, glabrous; skin smooth, glaucous, thin, tough; flesh light green, moderately juicy, tender, mild and rather sweet mingled with a little sprightliness; quality good.

Catherine. 1. *Gard. Chron.* 758. 1842. 2. *N. Y. Sta. Bul.* **114**:21. 1897.

Originated in England about 1840. As grown at this Station the plants are moderately vigorous, productive, slightly inclined to mildew; fruit large, oval, with thick skin, lemon-yellow, nearly smooth; good.

Cedar Hill. 1. *U. S. D. A. Pom. Rpt.* 394. 1891.

Originated with Dr. A. W. Thornton, West Ferndale, Washington, prior to 1890. Plants upright, very productive, and free from mildew; fruit large, oval, with thin skin, richly flavored.

Champion. 1. *Ohio Hort. Soc. Rpt.* 177. 1886–7. 2. *Am. Pom. Soc. Cat.* 18. 1897.

Originated with O. D. Dickinson, Salem, Oregon, previous to 1880. Plants vigorous, productive; fruit medium in size, roundish oval, greenish yellow; good; early.

Charles. 1. *Am. Pom. Soc. Rpt.* 286. 1921.

A cross between Houghton and Roaring Lion originated by William Saunders, London, Ontario; fruit larger than that of Downing, roundish oval, green, tinged with red, slightly subacid; good; midseason.

Chautauqua. 1. *Am. Gard.* **15**:119, fig. 1893–94. 2. *N. Y. Sta. Bul.* **114**:22, Pl. 8, fig. 61. 1897.

Of all the European gooseberries grown in North America, Chautauqua is probably the most promising, and as it grows in New York, at least, it is certainly the most deserving. In plant and fruit Chautauqua is far superior to Houghton and Downing which nurserymen and their agents keep constantly before growers of gooseberries. Chautauqua is less easily propagated than the sorts named, and hence difficult to obtain. At this Station the plants are almost free from the mildew which prevents the culture of the European gooseberries in many parts of the United States. Its culture is of the easiest and anyone who grows the comparatively worthless Houghton and Downing can as easily grow this admirable sort. The origin of Chautauqua is unknown. The original plant, however, was first observed in

an old garden in Dunkirk, New York, about 1876 by Lewis Roesch of Fredonia, who propagated it, later naming and introducing it in 1894. Charles Downing once saw the fruit and was of the opinion that it was an English variety renamed. Several varieties resemble it very closely but since the name Chautauqua has now become familiar, it seems wise to consider it a distinct sort. On the Pacific Coast Chautauqua is said to be identical with Whitesmith, where the latter name is always used. Chautauqua was added to the recommended fruit list of the American Pomological Society in 1897.

Plants large, vigorous, upright-spreading, rather dense, productive to very productive, healthy; young and older growth intermediate in stockiness and number of canes, reddish green, the older wood with more scarf-skin mingled with brown and red; prickles thickish, strong, long, numerous, thick at the base, 1–3; leaf-buds of medium size, long, lean, conical, free; leaves cordate, medium in size, thickness and color, glossy, vary from smooth to rugose, with rather obovate lobes and with bluntly crenate, somewhat hairy margins; petiole of medium length, slender, greenish, pubescent near the base. Flowers midseason, medium in size, mostly singly; pedicels medium in length and thickness, pubescent; calyx-tube greenish red, pubescent; calyx-lobes medium in length, width and thickness, pubescent, greenish red; ovary densely pubescent. Fruit midseason; adheres well, large, roundish oval, attractive, silvery green; skin smooth, covered with bloom, thick, tough, translucent; flesh pale green, juicy, firm, sweet or pleasantly sprightly near the skin; quality good.

Cheerful. 1. *Jour. Hort.* N. S. **29**:158. 1875. 2. *N. Y. Sta. Bul.* **114**:22. 1897.

Station plants of medium vigor; fruit of medium size, green, well flavored.

Cheshire Lass. 1. Lindley *Guide Orch. Gard.* 177. 1831.

As grown at this Station the plants are dwarfish, moderately vigorous, productive; fruit small, roundish oval with skin thin and slightly hairy; fair.

Clayton. 1. *Jour. Hort.* N. S. **7**:150. 1864. 2. *N. Y. Sta. Bul.* **114**:22. 1897.

As grown here the plants are vigorous, spreading, productive, susceptible to mildew; fruit very large, somewhat oblong with thin skin, smooth or slightly downy near calyx, reddish brown with dark red on the exposed side; good.

Columbus. 1. *U. S. D. A. Pom. Rpt.* 264. 1892. 2. Hedrick *Cyc. Hardy Fr.* 307, fig. 271. 1922.

An old English sort of unknown origin. It was introduced in America by Ellwanger & Barry, Rochester, New York, some time previous to 1890. It was listed by the American Pomological Society in its fruit catalog in 1897. Plants vigorous, free from mildew; fruit large, roundish oblong, greenish yellow, transparent, sweet; good.

Como. 1. *Minn. Hort. Soc. Rpt.* 229. 1921.

A cross between Pearl and Columbus, which originated at the Minnesota Fruit Breeding Farm, Excelsior, Minnesota, and was first designated as Minnesota No. 43. Plants vigorous, productive; berries large, roundish or slightly oblong, green; fair.

Companion. 1. *Can. Cent. Exp. Farm Bul.* **56**:25. 1907.

Introduced into Canada from England about 1890. Fruit large, roundish, green tinged with bronze, nearly smooth, sweet with astringent skin, pleasantly flavored; good.

CHAUTAUQUA

Copland. 1. *Am. Pom. Soc. Rpt.* 162. 1920.

Originated and introduced by Peter Copland, Johnstown, Ohio, about 1870. Plants said to be vigorous, stocky, upright, very productive; berries very large, pale yellow; very good.

Countess of Amsdale. 1. *N. Y. Sta. Bul.* **114**:22. 1897.

Station plants moderately vigorous, slightly susceptible to mildew; fruit above medium in size, dark green shaded with red, smooth; good.

Cremore. 1. *N. Y. Sta. Bul.* **114**:22. 1897.

At this Station the plants are medium in vigor, and slightly susceptible to mildew; fruit medium to large, green, nearly smooth; good.

Criterion. 1. *Jour. Hort.* N. S. **9**:107. 1865. 2. *N. Y. Sta. Bul.* **114**:22. 1897.

As grown here the plants are moderately vigorous and susceptible to mildew; fruit very large, oblong, slightly hairy, greenish yellow; very good.

Crosby Seedling. 1. *Can. Hort.* **11**:214. 1888.

Raised and introduced by L. Crosby, Markham, Ontario, about 1880. Fruit large, roundish oval, with thin skin, dark red, smooth; very good.

Crown Bob. 1. *Gard. Chron.* 18, 729. 1842. 2. *Horticulturist* **1**:448, fig. 106. 1846–47.

An old English gooseberry of unknown origin, grown in that country for more than 100 years and early introduced in America where it would be extremely valuable were it not for its susceptibility to mildew. Plants dwarfish, spreading, vigorous, very productive; fruit medium to large, nearly round, with thin skin, somewhat hairy, dark red; flesh firm, juicy, rich, sweet; good; ripens early.

Crystal. 1. *N. Y. Sta. Bul.* **114**:16. 1897.

Received for testing at this Station in 1888 from J. M. Ogle, Puyallup, Washington. It is probably a hybrid between a European gooseberry and some American sort. Plants vigorous, upright, productive; fruit below medium; skin moderately thick, dull green, downy; fair.

Cyprus. 1. *N. Y. Sta. Bul.* **114**:22. 1897.

On the Station grounds the plants are moderately vigorous, nearly free from mildew; fruit large, oblong; skin rather tough, dark red, nearly smooth; very good.

Dan Mistake. 1. McIntosh *Bk. Gard.* **2**:579. 1855. 2. *N. Y. Sta. Bul.* **114**:23. 1897.

As grown at this Station, the plants are vigorous and only slightly subject to mildew; fruit large, roundish oblong, smooth or slightly hairy, red; good.

Deacon. 1. *Can. Cent. Exp. Farm Bul.* **56**:23. 1907.

A seedling of Downing originated by William Saunders, Ottawa, Canada, about 1890. Plants vigorous, moderately productive, slightly affected with mildew; fruit of medium size, oval, smooth, yellowish green, sweet; good; midseason.

Diadem. 1. *N. Y. Sta. Bul.* **114**:23. 1897.

In the Station gooseberry collection the plants lack vigor, nearly free from mildew; fruit medium in size, smooth, green, tinged with yellow, somewhat acid; fair; late.

Dominion. 1. *N. Y. Sta. Bul.* **114**:23. 1897.

Received at this Station for testing in 1892 from E. C. Pierson, Waterloo, New York. Plants vigorous, productive, free from mildew; fruit large, roundish oblong, pale greenish white, nearly transparent, sweet; very good.

Downing. 1. *Can. Hort.* **14**:161, Pl. 1891. 2. *N. Y. Sta. Bul.* **114**:16, Pl. II, fig. 1. 1897. *Downing's Seedling.* 3. *Horticulturist* **12**:462, fig. 1857.

Of the sorts bred from an American species, Downing is now more grown in North America than any other gooseberry, although it is now agreed by botanists and pomologists that it is a hybrid with the European species. It is one of the easiest of all gooseberries to propagate, and from the time of its introduction it has, therefore, been a favorite with nurserymen. Fruit growers like it, also, because the plants are very vigorous, healthy and productive, and although the fruits are small, they are smooth, thin skinned, rather attractive in appearance and of very good quality. To be at its best the fruit must be picked as soon as full size is attained since decay sets in soon after maturity, and the product is seldom found in the markets sufficiently well ripened to eat out of hand. The plants are rarely attacked by mildew. Downing was originated about 1855 by Charles Downing, Newburgh, New York, as a seedling of Houghton. The variety was added to the fruit catalog of the American Pomological Society in 1862 and its name still appears in the Society's catalogs.

Plants above medium in size, vigorous, upright-spreading, rather dense, very productive, healthy; young shoots medium in thickness, numerous, with a thin layer of dull gray scarf-skin over brownish red; prickles strong, short, numerous, of medium thickness, 1–3, with bristles between the nodes, more numerous towards the base of the canes; leaf-buds medium in size and length, plump, appressed; leaves of medium size, with obovate lobes, medium in thickness and color, glossy, smooth or somewhat rugose, with somewhat hairy, crenate margins; petiole short, of medium thickness, greenish, pubescent. Flowers early, of medium size, 1–4; pedicels medium in length and thickness, glabrous; calyx-tube green, glabrous; calyx-lobes medium in length, width, and thickness, very lightly pubescent beneath, green, tinged with red; ovary quite glabrous, shining, greenish. Fruit midseason; variable in size averaging medium or below, roundish, silvery green, dull; pedicels short, thick; skin smooth, covered with bloom, thin, tough; flesh juciy, tender, aromatic, sprightly becoming sweet; quality very good to best.

Drill. 1. Hogg *Fruit Man.* 125. 1866. 2. *N. Y. Sta. Bul.* **114**:23. 1897.

An old English variety, the Station plants of which are not vigorous and are very susceptible to mildew; fruit large, pyriform, smooth, yellowish, sweet; good.

Duck Wing. 1. Lindley *Guide Orch. Gard.* 175. 1831. 2. *N. Y. Sta. Bul.* **114**:23. 1897.

On the Station grounds the plants are moderately vigorous, nearly free from mildew; fruit medium in size, somewhat pyriform, with thin skin, smooth, dark green, tinged with yellow and sometimes mottled with red; very good.

Duke of Sutherland. 1. Hogg *Fruit Man.* 126. 1866. 2. *N. Y. Sta. Bul.* **114**:23. 1897.

In the Station plats, the plants of this old English berry are vigorous, but slow growers, nearly free from mildew; fruit large, oblong, mostly smooth, red, sweet; very good; late.

DOWNING

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Duncan. **1.** *Can. Cent. Exp. Farm Bul.* **56**:23. 1907.

A hybrid between *R. cynosbati* and Red Warrington. It was originated by William Saunders, Ottawa, Canada, about 1890. Plants vigorous, upright, moderately productive; fruit large, oval, dull coppery red, quite prickly, with thick skin, sweet with much of the wild flavor; good; midseason.

Duplication. **1.** Goldsborough *Cat.* 4. 1908.

Originated about 1890 by Arthur T. Goldsborough, Washington, D. C. As grown at this Station the plants are upright-spreading; fruit large, roundish oblong, hairy, light green, pleasantly flavored; good.

Duster. **1.** Lindley *Guide Orch. Gard.* 181. 1831. **2.** *N. Y. Sta. Bul.* **114**:23. 1897.

As grown here, plants of this old English sort are moderately vigorous, somewhat affected by mildew; fruit of medium size, ovate or oblong, pale green, nearly smooth, sweet; good.

Early Green Hairy. **1.** Christ *Handb.* 810. 1817. **2.** *Pom. Mag.* **1**:22, Pl. 22. 1828.

Green Gascoigne. **3.** Hogg *Fruit Man.* 129. 1866.

Green Gage. **4.** *Am. Pom. Soc. Cat.* 54. 1852.

This variety has been much cultivated in the Old World for more than a century. It was introduced in America long ago and from 1852 until 1871 the name appeared in the fruit list recommended by the American Pomological Society. Plants vigorous, productive; fruit small, round; skin thin, hairy, deep green; good; early.

Excellent. **1.** *N. Y. Sta. Bul.* **114**:23. 1897.

In the Station gooseberry collection the plants are vigorous, productive, somewhat subject to mildew; fruit medium to large, round, nearly smooth, light red; very good.

Excelsior. **1.** *N. Y. Sta. Bul.* **114**:17. 1897.

A seedling of Champion which originated with J. H. Haynes, Delphi, Indiana, from whom it was received by this Station for testing in 1893. Plants vigorous, free from mildew; fruit roundish, smooth, light green; good.

Faithful. **1.** Lindley *Guide Orch. Gard.* 180. 1831. **2.** *N. Y. Sta. Bul.* **114**:23. 1897.

Station plants moderately vigorous, susceptible to mildew; fruit medium to large, somewhat oblong; skin thick, nearly smooth, pale green; poor.

Falstaff. **1.** *N. Y. Sta. Bul.* **114**:23. 1897.

Plants at this Station are subject to mildew; fruit large, pyriform, smooth, dark green tinged with red, sweet; good.

Fascination. **1.** *Flor & Pom.* 57, Pl. 512, fig. 4. 1880. **2.** *N. Y. Sta. Bul.* **114**:23. 1897.

Raised by Joseph Weston, Sutton, England, and distributed by him in 1877. As grown at this Station the plants are weak and subject to mildew; fruit of medium size, roundish, pale green, mottled with red, nearly smooth, sweet; fair.

Favonius. **1.** *Jour. Hort.* N. S. **11**:233. 1885. **2.** *N. Y. Sta. Bul.* **114**:24. 1897.

On the Station grounds the plants are vigorous, somewhat susceptible to mildew; fruit large, roundish, white, nearly smooth, sweet; good.

Flixtonia. 1. McIntosh *Bk. Gard.* **2**:579. 1855. 2. *N. Y. Sta. Bul.* **114**:23. 1897.

In the Station plats the plants are moderately vigorous and inclined to mildew; fruit large, pale red, slightly hairy, sweet; very good.

Flora. 1. *N. Y. Sta. Bul.* **114**:23. 1897. 2. *Can. Cent. Exp. Farm Bul.* **56**:24. 1907.

A cross between Houghton and Red Warrington which originated with William Saunders, Ottawa, Canada, about 1890. In the Station plats the plants are vigorous and healthy; fruit large, oblong, smooth green, with tough skin, sweet; good.

Forester. 1. Lindley *Guide Orch. Gard.* 178. 1831. 2. *N. Y. Sta. Bul.* **114**:23. 1897.

An old English variety, plants of which at this Station are moderately vigorous, slightly subject to mildew; fruit large, oval-oblong, pale red, somewhat hairy, sweet; good.

Foxhunter. 1. *Gard. Chron.* 811. 1844. 2. *N. Y. Sta. Bul.* **114**:24. 1897.

Cultivated in England as early as 1823. As grown here the plants are moderately vigorous, inclined to mildew; fruit large, oblong, dark green tinged with red, smooth, sweet; good.

Freedom. 1. *Gard. Chron.* 613. 1843. 2. Hogg *Fruit Man.* 128. 1866. 3. *N. Y. Sta. Bul.* **114**:24. 1897.

An old English sort. Station plants are moderately vigorous, productive, nearly free from mildew; fruit large, oblong; skin smooth, creamy white, sweet; good.

Frontenac. 1. *N. Y. Sta. Bul.* **114**:24. 1897.

Cayuga. 2. *Rural N. Y.* **52**:34, fig. 10. 1893.

This variety was introduced by H. S. Anderson, Union Springs, New York, in 1884. At this Station the plants are very vigorous and productive, subject to mildew; fruit large, oblong, smooth, pale green, sweet; good.

Galopin. 1. *N. Y. Sta. Bul.* **114**:24. 1897.

As grown here the plants are vigorous, slightly affected by mildew; fruit large, pyriform, smooth, dark green, tough skin; good.

Garibaldi. 1. Hogg *Fruit Man.* 128. 1866. 2. *N. Y. Sta. Bul.* **114**:24. 1897.

Originated in England about 1860. As grown at this Station the fruit is medium to large, roundish, fine yellow, nearly sweet; good.

General. 1. *Gard. Chron.* 612. 1843. 2. *N. Y. Sta. Bul.* **114**:24. 1897.

As grown here the plants of this sort are moderately vigorous; fruit medium to large, oblong, smooth, green; good.

George Ridley. 1. *N. Y. Sta. Bul.* **114**:24. 1897.

In the Station plats the plants are vigorous but susceptible to mildew; fruit medium to large, pyriform, pale green, acid; poor.

Gibb. 1. *Can. Exp. Farms Rpt.* 104. 1898.

Originated by William Saunders, Ottawa, Canada, about 1890. Plants vigorous, moderately productive, slightly affected with mildew; fruit large, roundish oval, dull red and green, smooth, sweet; good.

Gill. 1. *Rural N. Y.* **57**:322, fig. 138. 1898.

About 1878 John W. Gill, Philipsburg, Pennsylvania, was given plants of a gooseberry by an Englishman. Gill propagated it and distributed it under his name. Plants productive, immune to mildew; fruit large, roundish oblong, light green occasionally tinged with red; good; early.

Gipsy Queen. 1. Hogg *Fruit Man.* 147. 1866. 2. *N. Y. Sta. Bul.* **114**:24. 1897.

Grown in England in 1860. As grown at this Station the plants are weak and slightly affected by mildew; fruit large, oval; skin thin, smooth, yellow; sweet; fair.

Golborne. 1. *N. Y. Sta. Bul.* **114**:24. 1897.

Station plants vigorous, susceptible to mildew; fruit medium to large, oblong, light red, smooth; good.

Golden Beauty. 1. *Am. Pom. Soc. Sp. Rpt.* 81. 1904–05.

Mentioned in a report of the American Pomological Society's committee on Small Fruits in 1904 by A. F. Stevens, Wellesley, Massachusetts, as a new seedling, plants of which are vigorous, and free from mildew; fruit very large, golden yellow; very good.

Golden Drop. 1. Christ *Handb.* 813. 1817. 2. *N. Y. Sta. Bul.* **114**:24, 1897.

This old variety is widely grown in Europe. Station plants are moderately vigorous, nearly free from mildew; fruit medium in size, roundish oblong; skin very thin, light yellow changing to red, speckled on the exposed side, slightly hairy; good; early.

Golden Prolific. 1. *Can. Hort.* **11**:125. 1889. 2. *N. Y. Sta. Bul.* **114**:24. 1897.

Golden. 3. *Mich. Bd. Agr. Rpt.* 307. 1907.

An American seedling of the English type, found in 1882 in Rochester, New York. John Charlton, a nurseryman of Rochester, propagated the variety and distributed it eight years later. Station plants moderately vigorous, productive, mildew badly; fruit medium in size, oblong; skin thick, golden yellow, hairy and spiny; subacid; fair.

Governor. 1. Lindley *Guide Orch. Gard.* 174. 1831. 2. *N. Y. Sta. Bul.* **114**:24. 1897.

In the Station plats the plants are moderately vigorous, subject to mildew; fruit smooth, dark red, nearly sweet; good.

Gracilla. 1. *Rural N. Y.* **56**:646, fig. 270. 1897.

A variety of the European type sent out in 1895 by L. H. Hoysradt, Pine Plains, New York. Plants vigorous; fruit large, oblong, smooth, slightly crimson on the sunny side; good.

Great Rack. 1. *N. Y. Sta. Bul.* **114**:24. 1897.

In the Station gooseberry collection the plants are moderately vigorous and somewhat subject to mildew; fruit large, oblong, nearly smooth, dark red, sweet; good.

Green Walnut. 1. *N. Y. Sta. Bul.* **114**:24. 1897.

Smooth Green. 2. Mawe-Abercrombie *Univ. Gard. Bot.* 1778.

Belmont Green. 3. *Lond. Hort. Soc. Cat.* 193. 1826.

Nonpareil. 4. *Hort. Reg.* (*Eng.*) 548. 1833.

This is one of the oldest gooseberries in cultivation and is still much grown in some parts of Europe. The variety was included in the fruit list of the American Pomological

Society from 1852 to 1871. As grown at this Station the plants are moderately vigorous, nearly free from mildew; fruit medium in size, round, smooth, green, sweet; good.

Green Willow. 1. *Am. Pom. Soc. Rpt.* 70. 1852.

Johnson's Green Willow. 2. Christ *Handb.* 811. 1817.

In Europe this old variety is much grown for the home and market. Plants vigorous, productive; fruit large to very large, pear-shaped or oblong; skin thin, smooth, dull green; good; midseason.

Greenock. 1. McIntosh *Bk. Gard.* 2:579. 1855. 2. *N. Y. Sta. Bul.* 114:24. 1897.

Station plants moderately vigorous, susceptible to mildew; fruit medium to large, roundish, smooth, green, rather acid; fair.

Gretna Green. 1. McIntosh *Bk. Gard.* 2:579. 1855. 2. *N. Y. Sta. Bul.* 114:24. 1897.

As grown at this Station the plants are weak and subject to mildew; fruit medium to large, roundish oblong; skin thin, dark green, sparsely hairy; pleasantly flavored; good.

Harriet. 1. *N. Y. Sta. Bul.* 114:24. 1897.

In the Station gooseberry collection the plants of this variety are moderately vigorous and slightly affected by mildew; fruit of medium size, oblong, green tinged with red, hairy, subacid; inferior in quality.

Hedgehog. 1. Maurer *Stachelbeerbuch* 262, fig. 121. 1913.

Improved Early Hedgehog. 2. *N. Y. Sta. Bul.* 114:25. 1897.

An old variety still much grown in Europe. At this Station the plants are vigorous, productive, but slightly affected by mildew; fruit below medium in size, nearly round, yellowish green, somewhat hairy, sweet; fair.

Helpmate. 1. *N. Y. Sta. Bul.* 114:25. 1897.

Station plants weak, subject to mildew; fruit large, oblong, smooth, light green; good.

Hero of the Nile. 1. Hogg *Fruit Man.* 131. 1866. 2. *N. Y. Sta. Bul.* 114:25. 1897.

As grown here the plants are moderately vigorous, subject to mildew; fruit large, roundish oblong, smooth, green, subacid; good.

High Sheriff. 1. Hogg *Fruit Man.* 131. 1866. 2. *N. Y. Sta. Bul.* 114:25. 1897.

On the Station grounds the plants are moderately vigorous, nearly free from mildew; fruit large, roundish oval, slightly hairy, yellow, subacid; fair.

Highlander. 1. Hogg *Fruit Man.* 131. 1866. 2. *N. Y. Sta. Bul.* 114:25. 1897.

Station plants moderately vigorous, mildew slightly; fruit medium, round, slightly hairy, dark red, nearly sweet; good.

Hit or Miss. 1. Lindley *Guide Orch. Gard.* 174. 1831. 2. *N. Y. Sta. Bul.* 114:25. 1897.

As grown here the plants are moderately vigorous and affected by mildew; fruit large, roundish pyriform, yellowish, nearly smooth, sweet; good.

Hobbs Seedling. 1. Downing *Fr. Trees Am.* 504. 1869.

Originated by O. J. Hobbs, Randolph, Pennsylvania. Fruit medium in size, roundish oval, pale green, smooth.

HOENINGS EARLIEST

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Hoenings Earliest. **1.** Maurer *Stachelbeerbuch* 246. 1913.

In a plantation of some seventy or eighty varieties of European gooseberries, Hoenings Earliest is one of the earliest and one of the best. The fruits are beautiful golden yellow, the handsomest and best-flavored yellow gooseberry on our grounds. The plants are vigorous, hardy, productive, and fairly free from mildew. At any rate, the variety can be recommended for home use if the sort can be had from American nurserymen. Hoenings Earliest is very similar to a sort described by Hogg in England many years ago as Early Sulphur. This gooseberry was raised about 1900 by Julius Hoenings, Neuss, Germany. It has been disseminated on the continent by Herrn Hoenings, but as yet is little known in America.

Plants large, vigorous, upright, dense, variable in yield; young shoots stocky, dull brown mingled with gray; prickles strong, usually in threes, medium in thickness and length, numerous, with many bristles between the nodes especially towards the base of the shoots; leaf-buds small, short, conical, lean, free or slightly appressed; leaves large, cordate-ovate, medium in thickness and color, glossy, smooth, usually with five deeply cut lobes; petiole long, glabrous. Flowers midseason, medium to large, 1–2; pedicels longish, pubescent; calyx-tube pubescent; calyx-lobes tinged with red; ovary pubescent, glandular. Fruit early; clings well; large, roundish oval, glossy, yellowish, with paler veins; skin hairy, thick, tender, translucent; flesh juicy, melting, sweet, aromatic; quality very good.

Houghton. **1.** Bailey *Ev. Nat. Fruits* 390. 1898.

Houghton's Seedling. **2.** *Mag. Hort.* **13**:422. 1847. **3.** *Horticulturist* **3**:119, fig. 19. 1848–49.

Although it has several faults, Houghton is widely and commonly planted wherever gooseberries are grown in North America. It is without question the most popular sort after Downing. Its most glaring faults are that the fruits are small and uninviting in appearance; the foliage is a little too susceptible to mildew and aphis; and canners, to whom gooseberries are mostly sold in large quantities, do not like the fruit. To offset these faults, the plants are very hardy, vigorous, productive, thrive under a great diversity of conditions, and the berries are rich and sweet, although not of the best quality. Houghton is without question a hybrid between an European and an American gooseberry, and is the oldest American variety of note, having originated from seed planted in 1833 by Abel Houghton, Lynn, Massachusetts. Houghton was added to the recommended fruit list of the American Pomological Society in 1852, a place it still retains.

Plants very large, vigorous, upright becoming very spreading, rather dense, productive to very productive, healthy; young shoots medium to slender, numerous, dark brownish red overlaid with dull gray; prickles medium in thickness and strength, short, usually singly or in twos, with few bristles between the nodes; leaf-buds small, of medium length, conical, lean, free; leaves medium in size and thickness, cordate, with obovate, open, deeply cut lobes, dark green, semi-glossy, variable in smoothness; with hairy, crenate margins; petiole short, of medium thickness, greenish, pubescent. Flowers late, small, 1–3; pedicels medium in length and thickness, glabrous; calyx-tube green, glabrous, green mingled with a slight reddish tinge; ovary glabrous, quite smooth and shining, greenish. Fruit midseason; very small, roundish, light silvery green changing at maturity to a rather handsome

dull dark red; skin smooth, thin, glaucous, medium in firmness; flesh greenish, moderately juicy, tender, pleasing in flavor, very sweet; quality very good.

Hudson. 1. *Gard. Mon.* **22**:303. 1880.

Raised by J. H. Ricketts, Newburgh, New York, in the early seventies. It is supposed to be a seedling of an American gooseberry. Plants healthy; fruit large; good.

Hue-and-Cry. 1. Hogg *Fruit Man.* 131. 1866. 2. *N. Y. Sta. Bul.* **114**:25. 1897.

At this Station the plants are medium growers and subject to mildew; fruit large, oblong, pale green, smooth, sweet; good.

Huntsman. 1. *N. Y. Sta. Bul.* **114**:25. 1897.

Station plants vigorous, productive, nearly free from mildew; fruit large, oblong, smooth, pale green, sweet; good.

Industry. 1. *Rural N. Y.* **44**:770. 1885. 2. *N. Y. Sta. Bul.* **114**:25. 1897.

Whinham's Industry. 3. *Gard. Chron.* 3d Ser. **3**:597. 1888.

With Chautauqua, Industry is usually considered the best of the European gooseberries in America. It is one of the most vigorous varieties of its class; rather more productive than any other European; and while by no means free from mildew, it often passes through a season without much mildew, and when infested, the disease is usually readily controlled by spraying. On our grounds the plants are very strong growers, and usually produce as much fruit if not more than those of any other European variety. Many gooseberry growers prefer to have plants from the nursery grown in bush form rather than in tree form. The berries are large, claret-red, rich, sweet, and delicately piquant, and about the best flavored of all the commonly grown gooseberries in American plantations. Very often the berries are picked too soon; to be at their best they should be allowed to remain on the plant until full maturity is reached. The chief defect of the variety for American conditions is that it is difficult to propagate, and therefore scarcely obtainable from nurserymen. Industry was raised by Robert Whinham early in the nineteenth century in northern England. It was disseminated in this country by Ellwanger & Barry, Rochester, New York, about 1885. The American Pomological Society added the variety to its fruit catalog list in 1891.

Plants of medium size and density, vigorous, upright, productive, healthy; young shoots medium in thickness and number, dark brownish red almost entirely overspread with gray scarf-skin; prickles variable in length, of medium thickness and number, strong, thick at the base, singly with scattering bristles between the nodes; leaf-buds large, long, conical, plump, free; leaves medium in size, cordate, with obovate, deeply cut, open lobes, thick, dark green, glossy, smooth, with crenate margins; petiole of medium length and thickness, greenish, pubescent and with reddish hairs. Flowers midseason, large, singly; pedicels medium in length and thickness, pubescent; calyx-tube green, pubescent; calyx-lobes narrow, medium in length and thickness, pubescent, tinged red; ovary pubescent, sometimes with a few reddish hairs. Fruit early; variable in size and shape, averaging large, roundish oval, deep, dull wine-red, with lines and flecks of lighter color becoming dark red at full maturity; skin variable, nearly smooth or slightly hairy, glaucous, of medium

HOUGHTON

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thickness, tough, translucent; flesh yellowish green, juicy, tender, pleasantly sprightly to sweet; quality very good.

Ironmonger. 1. *Lond. Hort. Soc. Cat.* 189. 1826. 2. *N. Y. Sta. Bul.* **114**:25. 1897.

This variety has been known in England for more than a century, and, though similar to Red Champagne, is distinct. It was included in the fruit list of the American Pomological Society from 1852 to 1871. As grown at this Station the plants are vigorous and free from mildew; fruit small, round, dark red, nearly smooth, sweet; good.

Italy. 1. *N. Y. Sta. Bul.* **114**:25. 1897.

Station plants weak, mildew slightly; fruit of medium size, nearly round, green tinged with red, smooth, sweet; fair.

Jem Mace. 1. *N. Y. Sta. Bul.* **114**:25. 1897.

In the Station plats, the plants are moderately vigorous, and free from mildew; fruit of medium size, nearly round, smooth, yellow, sweet; good.

Jerry. 1. Hogg *Fruit Man.* 132. 1866. 2. *N. Y. Sta. Bul.* **114**:25. 1897.

Station plants moderately vigorous, productive; fruit large, nearly round, almost white, slightly hairy, sweet; good.

Jessie. 1. *N. Y. Sta. Bul.* **114**:26. 1897.

In the Station gooseberry collection the plants are weak and mildew slightly; fruit large, nearly smooth, pale green, sweet; good.

Jewett. 1. *U. S. D. A. Pom. Rpt.* 27. 1894.

A chance seedling found in a pasture and distributed by George H. Andrews, Clarkson, New York. Fruit large, oblong, silvery green, becoming slightly blotched with red, firm, juicy, subacid, rich; early.

John Anderson. 1. *N. Y. Sta. Bul.* **114**:26. 1897.

Station plants weak, subject to mildew; fruit large, nearly round, light red, slightly hairy, sweet; good.

John Hall. 1. *N. Y. Sta. Bul.* **114**:26. 1897.

As grown here the plants are moderately vigorous and subject to mildew, productive; fruit medium to large, oblong, pale green, smooth, sweet; good.

Jolly Angler. 1. *Lond. Hort. Soc. Cat.* 75. 1842. 2. *N. Y. Sta. Bul.* **114**:26. 1897.

At this Station the plants of this variety are very vigorous, free from mildew and productive; fruit large, roundish oblong, light green occasionally mottled with red, smooth, sweet; good; late.

Jolly Sailor. 1. *N. Y. Sta. Bul.* **114**:26. 1897.

Station plants moderately vigorous, affected by mildew; fruit medium in size, nearly round, smooth, yellow, sweet; inferior.

Josselyn. 1. *Mich. St. Bd. Agr. Rpt.* 307. 1907. 2. *U. S. D. A. Farmers' Bul.* **1024**:33. 1919.

Red Jacket. 3. *U. S. D. A. Pom. Rpt.* 265. 1892. 4. *Rural N. Y.* **52**:34, fig. 13. 1893. 5. *N. Y. Sta. Bul.* **114**:19, Pl. II, fig. 5. 1897.

This variety is supposed to be a hybrid between Houghton and Red Warrington. It originated with William Saunders,[1] London, Ontario, about 1876, and was named and introduced by George S. Josselyn, Fredonia, New York, about 1890. The sort was named Red Jacket without knowledge of another Red Jacket of English origin. Latterly most published information concerning the variety appears under the name Josselyn, although the sort is still known as Red Jacket. The American Pomological Society first listed the variety in its fruit catalog in 1897. Plants large, vigorous, spreading, practically free from mildew, productive; fruit medium in size, roundish oval, reddish green, becoming pale red; skin smooth; rich, juicy, fragrant, sweet; very good to best; early.

Keen Seedling. 1. Lindley *Guide Orch. Gard.* 179. 1831. 2. *N. Y. Sta. Bul.* 114:26. 1897.

Station plants moderately vigorous, slightly drooping, productive; fruit of medium size, roundish oblong; skin thin, red, hairy; aromatic; good.

Keepsake. 1. *Gard. Chron.* 612. 1843. 2. Hogg *Fruit Man.* 132. 1866.

Among the good European sorts in the Station plantation is Keepsake. The plants are large, vigorous and productive, fairly free from mildew and other diseases, and comparatively easily propagated, which is a great asset in this country with European gooseberries. A fault is that the fruits are variable in size and not particularly handsome in appearance. But the quality is excellent and the fruit ripens early so that, all in all, the product is well worth having, and the variety is one of the few European gooseberries that can be recommended for American conditions. Keepsake apparently originated in England early in

[1] William Saunders, great Canadian horticulturist, entomologist, and a leader in experimental work in agriculture in the Dominion of Canada, was born in England in 1835 and died in London, Ontario, September 13, 1914. His name will be found in *The Small Fruits of New York* as a breeder of raspberries, gooseberries, and currants more often than that of any other man. On his fruit farm, near London, Ontario, Saunders worked for many years hybridizing small fruits, grapes, and apples, besides which he did much in improving Canadian cereals. Saunders started his professional career as a chemist and druggist, but found time for work in the avocations of botany, entomology, horticulture, and plant breeding. He was one of the founders of the Entomological Society of Ontario. and for thirteen years was editor of the *Canadian Entomologist.* He is the author of *Insects Injurious to Fruits*, long regarded on this side of the Atlantic as about the best book on economic entomology for fruit growers. In 1886 he became director of the Dominion Experimental Farms at Ottawa, where for a quarter of a century he labored unremittingly in science and administrative work to build up the splendid chain of agricultural stations which now stretch in the provinces of Canada from the Atlantic to the Pacific. Space does not offer to give details of his work with all the fruits; mention can be made only of his most meritorious small fruits. Perhaps he did most with black currants, of which Magnus, Clipper, Climax, and Eagle are best known. He crossed the gooseberry with the black currant, thereby producing an interesting but sterile hybrid. In his work with raspberries he made many crosses between red and black sorts. Sarah is about the best of these. Two red varieties, Brighton and Count, have been grown more or less. Several of the gooseberries originated by Saunders as Pearl and Josselyn, are now commonly grown in gooseberry regions. Perhaps his most noteworthy work in breeding fruits was with hardy apples for the cold Canadian Northwest, using the common crab and Russian and American apples as parents. His Marquis wheat proved to be one of the best varieties for the Northwest, and added millions of dollars to the farm crops in the Far West. He was, all in all, Canada's greatest pomologist, plant breeder, and worker in agriculture, and stands out as a foremost man in several fields of agriculture on this side of the Atlantic.

KEEPSAKE

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the nineteenth century but no mention of the name of the originator or of the parentage of the berry can be found. The variety is widely grown in England. In 1909 the name was added to the fruit list of the American Pomological Society.

Plants medium in size and vigor, upright-spreading, dense, productive, healthy; young shoots intermediate in stockiness and number, reddish brown almost entirely submerged by dull gray scarf-skin; prickles medium in thickness, strength and length, usually singly, with a few bristles between the nodes toward the base of the canes; leaf-buds medium in size, length and plumpness, conical, free; leaves rather small, open at the base, cordate, with deeply cut lobes, medium in color and thickness, semi-glossy, rugose, with somewhat toothed or crenate, hairy margins; petiole short, of medium thickness, greenish, pubescent, with light colored hairs. Flowers late, usually singly; pedicels short, slender, pubescent; calyx-tube green, pubescent; calyx-lobes medium in length, width and thickness, tinged red; ovary pubescent. Fruit early; variable in size averaging medium, roundish oval to long-oval, light green, with a silvery tinge and with a few flecks of rusty red near the base; skin nearly smooth, glaucous, thin, tough, translucent; flesh greenish, juicy, firm, sprightly to sweet at full maturity; quality good.

King of Trumps. **1.** *Gard. Chron.* 868. 1864. **2.** *N. Y. Sta. Bul.* **114**:26. 1897.

On the Station grounds the plants are moderately vigorous and mildew badly; fruit large, roundish oblong, smooth, pale green, subacid; good.

Lady Houghton. **1.** *Jour. Hort.* N. S. **3**:124. 1881. **2.** *N. Y. Sta. Bul.* **114**:26. 1897.

As grown here the plants are moderately vigorous and free from mildew; fruit large, oblong, yellowish green, slightly hairy, sweet; good.

Lady Popham. **1.** *Gard. Chron.* 103. 1864. **2.** *N. Y. Sta. Bul.* **114**:26. 1897.

In the Station plats the plants are moderately vigorous, productive and nearly free from mildew; fruit large, roundish oval, nearly smooth, yellow, very sweet; good.

Lady Stanley. **1.** *Gard. Chron.* 583. 1846. **2.** *N. Y. Sta. Bul.* **114**:26. 1897.

At this Station the plants are moderately vigorous and slightly subject to mildew; fruit of medium size, oblong, green tinged with red, slightly hairy, subacid; good.

Lancashire Lad. **1.** Lindley *Guide Orch. Gard.* 174. 1831. **2.** Hogg *Fruit Man.* 133. 1866. **3.** Card *Bush-Fr.* 325. 1917.

Hartshorn's Lancashire Lad. **4.** Downing *Fr. Trees Am.* 216. 1845.

This old English sort has long been grown in America and is possibly among the half dozen best European gooseberries for American conditions. The fruits stand shipment particularly well and are handsome in appearance and very good in flavor when permitted to ripen completely. It is a favorable market sort wherever it succeeds. Perhaps its most valuable characteristic, however, is that the plants are comparatively little troubled with the dreaded mildew. As a green fruit, the product is not desirable, as it is very austere and sometimes astringent. This is an English variety of unknown origin, long grown in English gardens and early introduced to America.

Plants small, weak, spreading, open, unproductive; young shoots stocky, few, reddish brown overlaid with dull gray scarf-skin; prickles strong, short, 1–3; leaf-buds small, medium in length, obtuse, plump, free; leaves medium in size, thickness and color, cordate, with

deeply cut lobes, with hairy, slightly crenate margins; petiole short, of medium thickness, green, pubescent, with few glands. Flowers very late, medium in size, singly; pedicels short, medium thick, pubescent; calyx-tube green, pubescent; calyx-lobes medium in length and thickness, narrow, pubescent, greenish red; ovary pubescent, glandular, reddish. Fruit midseason; variable in size, medium to large, roundish oval, often inclined to oblong, at first pale silvery green becoming dark wine-red, with lines of lighter markings and flecks; skin with long, rather stiff hairs, glandular, slightly glaucous, thin, tough; flesh pale greenish red, juicy, rather firm, sprightly; quality good.

Largo. 1. *N. Y. Sta. Bul.* **114**:26. 1897.

Station plants moderately vigorous, mildew slightly; fruit medium, nearly round, dark red, almost smooth, subacid; fair.

Late Emerald. 1. *Gard. Mon.* **19**:275. 1877.

Originated by E. P. Roe, Cornwall, New York. Plants vigorous, productive; resistant to mildew; fruit large, bright green.

Lavinia. 1. *N. Y. Sta. Bul.* **114**:26. 1897.

Plants at this Station are vigorous, and nearly free from mildew; fruit medium to large, oblong, green, smooth, sweet; good.

Leader. 1. Lindley *Guide Orch. Gard.* 175. 1831. 2. *N. Y. Sta. Bul.* **114**:26. 1897.

In England this is a standard variety. As grown at this Station the plants lack vigor and mildew badly; fruit medium to large, oblong, yellowish, smooth, sweet; good.

Leveller. 1. Hogg *Fruit Man.* 133. 1866. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

Originated in England about 1850. On the Station grounds the plants lack vigor but are productive, mildew slightly; fruit medium to large, oblong, nearly smooth, yellowish, slightly acid; good.

Leviathan. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

Here the plants mildew slightly; fruit below medium, nearly round, smooth; inferior.

Lion Provider. 1. *Gard. Chron.* 774. 1843. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

Station plants moderately vigorous, susceptible to mildew, medium productive; fruit medium in size, long, red, slightly hairy; good.

Lizzard. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

Here the plants lack vigor, mildew slightly; fruit medium in size, oblong, smooth, light green, sweet; good.

London. 1. *Gard. Chron.* 118. 1841. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

This variety has been known since 1840. As grown at this Station the plants are moderately vigorous and mildew slightly; fruit large to very large, oblong, almost smooth, dark red, sweet; good.

Long Barney. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

Station plants vigorous, mildew slightly; fruit large, oblong, smooth, light red, sweet; good.

Lord Beaconsfield. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

Here the plants are vigorous, productive, but mildew slightly; fruit medium, roundish oval, green, smooth, sweet; good.

Lord Leigh. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

At this Station the plants are vigorous but mildew slightly; fruit large, oblong, red, slightly hairy, sweet; good.

Lord Rancliffe. 1. Lindley *Guide Orch. Gard.* 180. 1831. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

Originated in England at the beginning of the nineteenth century. As grown here the plants are vigorous but mildew; fruit large, oblong, smooth, yellowish green, subacid; good.

Lord Scarborough. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

Station plants lack vigor, but are nearly free from mildew; fruit large, pear-shaped, yellowish green, nearly sweet; inferior.

Lowton. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

In the Station plats the plants are vigorous but mildew slightly; fruit medium in size, roundish oblong, dark red, slightly hairy, subacid; good; early.

Mabel. 1. *Can. Cent. Exp. Farm Bul.* **56**:23. 1907.

Originated by William Saunders, Ottawa, Canada, about 1890. Plants vigorous, very productive, resistant to mildew; fruit above medium in size, roundish oval, pale green, translucent, sweet; fair; midseason.

Major Hibbert. 1. Hogg *Fruit Man.* 135. 1866. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

Station plants vigorous but mildew slightly; fruit small, nearly round, pale green, slightly hairy, sweet; good.

Marlboro. 1. Hogg *Fruit Man.* 135. 1866. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

Here the plants are moderately vigorous, slightly subject to mildew; fruit large, oblong, smooth, pale red, sweet; fair.

Mary Ann. 1. Lindley *Guide Orch. Gard.* 182. 1866. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

At this Station the plants are moderately vigorous, somewhat subject to mildew; fruit large, nearly round, light green, nearly smooth, sweet; inferior.

Matchless. 1. Hogg *Fruit Man.* 135. 1866. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

On the Station grounds the plants are vigorous, productive, but mildew slightly; fruit large, oblong, dull green, slightly hairy, sweet; very good.

May Duke. 1. Maurer *Stachelbeerbuch* 110, fig. 48. 1913. 2. *U. S. D. A. Farmers' Bul.* **1024**:33, fig. 26. 1919.

May Duke was brought to America a few years ago and has been tested in several different parts of the United States. All who have grown it think well of it as an early gooseberry of the European type. Because of its vigorous, productive, healthy plants and large, dark red smooth-skinned fruits and yellow, juicy, firm, aromatic and pleasantly flavored flesh, May Duke is recommended as one of the best early sorts of its parentage. On the grounds of this Station May Baker is the same as May Duke. No information is available as to the origin of this gooseberry, except that the variety came to America from

England. It was also taken to Germany in 1892, but German horticulturists were unable to obtain information regarding its history.

Plants medium in size, vigorous, upright-spreading, dense, productive, healthy; young shoots somewhat stocky, intermediate in number of canes, dull reddish brown mingled with gray scarf-skin; prickles slender, strong, short, seldom more than one; leaf-buds medium in size and length, conical, plump, semi-free; leaves medium in size, and thickness, cordate, with obovate lobes, dark green, semi-glossy, rugose, with hairy, crenate margins; petiole medium in length and thickness, greenish, pubescent, with a few glands toward the base. Flowers very early, medium in size, singly and occasionally in twos and threes; pedicels medium in length and thickness, nearly glabrous; calyx-tube greenish, slightly pubescent; calyx-lobes medium in length, width and thickness, pubescent underneath, green with faint tinge of red; ovary pubescent. Fruit early; variable in size averaging above medium, roundish oval or oval, pale silvery green changing to dull dark red; skin smooth, glaucous, medium in thickness and toughness; flesh yellowish, tinged with red, juicy, firm, aromatic, pleasantly flavored, sweet; quality good to very good.

Miss Chester. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

Station plants weak, mildew slightly; fruit medium to large, nearly round, greenish, smooth, slightly hairy, subacid; inferior.

Mitchell. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

Here the plants are vigorous, but mildew slightly; fruit medium to large, oblong, pale green, smooth, sweet; good.

Mitre. 1. Hogg *Fruit Man.* 135. 1866. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

As grown here the plants are vigorous but mildew slightly; fruit large, oval, pale green, hairy, sweet; good.

Monarch. 1. McIntosh *Bk. Gard.* **2**:579. 1855. 2. *N. Y. Sta. Bul.* **114**:27. 1897.

On the Station grounds the plants lack vigor but are free from mildew; fruit medium in size, oblong, red, slightly hairy, nearly sweet; good.

Monument. 1. *N. Y. Sta. Bul.* **114**:27. 1897.

In the Station plats the plants are moderately vigorous but mildew slightly; fruit medium, oval, pale red, nearly smooth, sweet; good.

Mount Pleasant. 1. Hogg *Fruit Man.* 136. 1866. 2. *N. Y. Sta. Bul.* **114**:28. 1897.

Originated in England about 1850. Here the plants are moderately vigorous, productive, mildew very slightly; fruit large, roundish oval, deep orange-yellow; skin thick, slightly hairy; sweet; fair.

Mountain. 1. *Cultivator* 287. 1856. 2. *N. Y. Sta. Bul.* **114**:17, fig. 6, Pl. 2. 1897.

Discovered by a colony of Shakers about 1846 growing wild at Lebanon, New York. The habit of the plant indicates a hybrid between the *G. grossularia* and *G. cynosbati*. From 1860 to 1891 the variety was included in the fruit list of the American Pomological Society. Station plants are tall, with slender sprawling branches, resistant to mildew, unproductive; fruit larger than that of Downing, oblong, dull brownish purple, smooth, thick-skinned, moderately juicy, sweet.

MAY DUKE

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Mrs. Bowcock. 1. *N. Y. Sta. Bul.* **114**:28. 1897.

Here the plants are moderately vigorous, inclined to mildew; fruit large, slightly oblong, yellow, smooth, sweet; good.

Mrs. Whittaker. 1. *N. Y. Sta. Bul.* **114**:28. 1897.

Station plants lack vigor and mildew slightly; fruit large, pear-shaped, yellowish green, nearly smooth, sweet; good.

Nailor. 1. Lindley *Guide Orch. Gard.* 177. 1831. 2. *N. Y. Sta. Bul.* **114**:28. 1897.

Grown in England a century ago. Station plants produce fruit of medium size, greenish white, smooth, sweet; good.

Nancy. 1. *N. Y. Sta. Bul.* **114**:28. 1897.

In the Station gooseberry collection the plants of this variety are not strong growers and are somewhat susceptible to mildew, but they are very productive; fruit large, nearly round, slightly hairy, silvery white, sweet; good.

Napoleon le Grand. 1. Hogg *Fruit Man.* 136. 1866. 2. *N. Y. Sta. Bul.* **114**:28. 1897.

As grown at this Station the plants are moderately vigorous and quite free from mildew; fruit of medium size, roundish oval, red, slightly hairy, sweet; good.

Nebraska Prolific. 1. *Country Gent.* **26**:238. 1866.

This variety was tested in several states sixty years ago and may have originated with R. O. Thompson, Nursery Hill, Nebraska. The plants are healthy, do not mildew, and produce berries of exceptionally good flavor.

Nebraska Seedling. 1. *Country Gent.* **26**:142. 1865.

A seedling of Nebraska Prolific which was raised about sixty years ago by R. O. Thompson, Nursery Hill, Nebraska. Plants vigorous, free from mildew, productive; fruit large, green with slight pinkish tinge, pleasantly flavored; good.

Newell. 1. *Col. O. Hort. Soc. Rpt.* 31. 1892.

Sent out for trial by A. H. Gaston, Locon, Illinois, about 1890. It is described as a hardy plant, free from mildew, producing large, attractive berries.

Nottingham. 1. *N. Y. Sta. Bul.* **114**:28. 1897.

Origin unknown. At this Station the plants are moderately vigorous, quite free from mildew; fruit medium in size, oblong, red, somewhat hairy, subacid; good.

Orange. 1. *Am. Pom. Soc. Cat.* 22. 1875. 2. *Rural N. Y.* **45**:493, fig. 304. 1886.

Engle's Yellow. 3. *Gard. Mon.* **17**:270. 1875.

Early Orange. 4. *Ind. Sta. Bul.* **48**:12. 1894.

Supposed to have originated in New York many years ago; distributed by H. M. Engle, Marietta, Pennsylvania. The American Pomological Society included the variety in its catalog list of fruits from 1875 to 1897. Plants vigorous, productive; fruit small, rich golden yellow, pleasantly flavored; good; early.

Oregon. 1. *Am. Pom. Soc. Cat.* 29. 1909.

Oregon Champion. 2. *Am. Pom. Soc. Rpt.* 127. 1875. 3. *U. S. D. A. Pom. Rpt.* 394. 1891.

Originated about 1860 on the grounds of Dr. P. Prettyman, Multonomah County, Oregon, as a cross between Crown Bob and Houghton. In 1909 the American Pomological Society added this berry to its list of recommended fruits. Plants large, vigorous, upright-spreading, very productive; fruit small, roundish oval, pale whitish green, with thin skin, tough, smooth, juicy, tender, pleasantly sprightly to rather tart; fair; midseason.

Oregon Jumbo. **1.** Card *Bush-Fr.* 403. 1898.

Introduced many years ago by the J. T. Lovett Nursery Company, Little Silver, New Jersey. Plants vigorous, productive, hardy; fruit smooth, pale green; good.

Over All. **1.** Lindley *Guide Orch. Gard.* 174. 1831. **2.** *N. Y. Sta. Bul.* **114**:28. 1897.

Grown in England a century ago; widely disseminated there and upon the continent. In the Station plats the plants are vigorous and nearly free from mildew; fruit large, roundish, pale green, smooth, sweet; good.

Overseer. **1.** Hogg *Fruit Man.* 137. 1866. **2.** *N. Y. Sta. Bul.* **114**:28. 1897.

Originated in England many years ago. At this Station the plants are not strong growers but are quite free from mildew; fruit large, pale green, smooth, sweet; very good.

Pale Red. **1.** Downing *Fr. Trees Am.* 504. 1869. **2.** *N. Y. Sta. Bul.* **114**:18. 1897.

Ohio Seedling. **3.** *Ohio Hort. Soc. Rpt.* 16. 1859.

American Seedling. **4.** *Rural N. Y.* **11**:287. 1860.

Cluster. **5.** *Horticulturist* **21**:275. 1866.

The origin of this variety is unknown except that it is an American variety and that it has been under cultivation for at least a century. It has been known by various names throughout this long period. The American Pomological Society first listed the sort in its fruit catalog under the name American Seedling in 1862, but changed the name to Pale Red in 1871, and it has so appeared since in the Society's catalog. Plants large, vigorous, inclined to be upright-spreading, healthy, very productive; fruit medium to small, roundish, light or pale red, becoming darker when fully mature, smooth, sweet; good to very good; early.

Pearl. **1.** *U. S. D. A. Pom. Rpt.* 395. 1891. **2.** *N. Y. Sta. Bul.* **114**:18, Pl. II, fig. 3. 1897. **3.** *Can. Cent. Exp. Farm Bul.* **56**:24, Pl. 3. 1907.

William Saunders originated this variety at London, Ontario, in the early eighties as a cross between Downing and Red Warrington. It was named and introduced in 1888 by A. M. Smith, St. Catharines, Ontario. At this Station the plants are vigorous, upright-spreading, and productive, resembling Downing in growth and fruit characteristics; berries small, roundish, silvery green, smooth, sweet with pleasant sprightliness; good; midseason.

Peru. **1.** *Gard. Chron.* 583. 1846. **2.** *N. Y. Sta. Bul.* **114**:28. 1897.

Grown in England many years ago. Plants at this Station are large, spreading, unproductive; fruit large, oblong, slightly hairy, yellowish white, sweet; good.

Peto. **1.** Hogg *Fruit Man.* 137. 1866. **2.** *N. Y. Sta. Bul.* **114**:28. 1897.

In the Station gooseberry collection, plants of this sort are vigorous but susceptible to mildew; fruit medium in size, smooth, oblong, greenish white, subacid; inferior.

Pilot. 1. *Gard. Chron.* 118. 1841. 2. *N. Y. Sta. Bul.* **114**:28. 1897.

Originated in England long ago. At this Station the plants are moderately vigorous, spreading, subject to mildew; fruit small, roundish oblong, green, smooth, subacid; inferior.

Plowboy. 1. *N. Y. Sta. Bul.* **114**:28. 1897.

Plough Boy. 2. *Lond. Hort. Soc. Cat.* 77. 1842.

Originated in England nearly a century ago. In the Station plats the plants are moderately vigorous, mildew slightly; fruit large, oblong, smooth, light red, subacid; good.

Poorman. 1. *Utah St. Bd. Hort. Rpt.* 64. 1903–04. 2. *N. Y. Sta. Bul.* **364**:193. 1913. 3. *Rural N. Y.* **79**:875. 1920.

This variety has attracted more attention from American gooseberry growers than any other sort in this generation. It has very generally received the approbation of pomologists because of the vigor and productiveness of the plants and the handsome appearance and high quality of the fruits. It passes as an American sort, with few characters to indicate European blood. The berries are much larger than those of any of the other American varieties and are characterized by their oval shape and red color when ripe. The quality is unsurpassed by that of any other gooseberry. The thorns are short and few and less objectionable than in most American varieties. Another splendid character is that it is easily propagated from cuttings, so that nurserymen should find it much more profitable to grow than either the Houghton or Downing which they so commonly sell because of easy propagation. The plants are so vigorous that they should be set farther apart in the field than other varieties. Poorman originated about 1888 with William H. Craighead, Brigham City, Utah, and was introduced in 1896 by D. S. Lohr, Tremonton, Utah. It is supposed to be a cross between Houghton and Downing, and the bush and fruit would indicate such parentage. In 1909 the American Pomological Society added Poorman to its catalog list of fruits.

Plants very large, very vigorous, upright, becoming quite spreading, dense, productive, healthy; young shoots variable but average slender, numerous, reddish brown, covered with a rather loose, gray scarf-skin; prickles quite variable, average medium in size, strong, variable in thickness and length, 1–3, interspersed with few to many bristles between the internodes; leaf-buds medium in size and length, conical, lean, semi-free; leaves medium to very large especially on the branches without fruit, cordate, with deeply cut, obovate lobes, thin, medium green, semi-glossy, rugose, with crenate to nearly serrate, hairy margins; petioles medium in length, rather slender, greenish, pubescent, with very few glands near the base. Flowers midseason, medium in size, usually singly, sometimes two; pedicels medium in length and thickness, glabrous; calyx-tube green or with tinge of red, glabrous; calyx-tubes short, narrow, medium in thickness, glabrous within, with a few small hairs without, dull greenish red; ovary glabrous. Fruit early midseason, ripening period long, picks easily; variable in size, averaging above medium, roundish oval to distinctly oval or somewhat pear-shaped, pale silvery green gradually changing to a beautiful pinkish red deepening to almost wine-red; skin smooth, with thin, lilac bloom, rather tough, translucent; flesh greenish, juicy, tender, pleasantly sprightly becoming very sweet; aromatic; quality very good to best.

Poorman Delight. 1. Lovett *Cat.* 14. 1920.

Introduced by J. T. Lovett, Little Silver, New Jersey. Plants vigorous, upright, with attractive glossy foliage, productive; fruit large, bright red; good.

Portage. 1. *U. S. D. A. Pom. Rpt.* 395. 1891. 2. *Ibid.* 27, Pl. II. 1894. 3. Card *Bush-Fr.* 327. 1917.

This variety is so similar to Chautauqua on the grounds of this Station that the two have sometimes been thought identical. The variety, however, is described as distinct by workers in the United States Department of Agriculture and by other pomologists so that it is here held as distinct. A comparison of the descriptions of the two sorts shows some slight differences. As yet the variety is little known among berry growers, but with its good qualities ought to be generally planted. Portage originated as a chance seedling in 1874 with A. H. House, Mantua, Portage County, Ohio. It was propagated in a limited way by George J. Streator, Garrettsville, Ohio, until about 1905 when nursery firms began offering it for sale.

Plants above medium in size, vigorous, upright-spreading, dense, productive, healthy; young shoots stocky, numerous, reddish brown overlaid with dull gray scarf-skin; prickles slender, strong, short, 1–3; leaf-buds medium in size, long, obtuse, moderately plump, semi-free, ragged at the apex; leaves medium in size, cordate, with obovate lobes, thick, medium green, glossy, rugose, with hairy, crenate margins; petiole short, medium in thickness, pubescent, with very few small glands near the base. Flowers early, medium in size, usually singly, occasionally in twos; pedicels medium in length and thickness, pubescent; calyx-tube reddish green, heavily pubescent; calyx-lobes medium in length, width and thickness, pubescent; dull reddish green; ovary pubescent. Fruit late; variable in size, medium to large, roundish oval, dull, pale silvery green; skin smooth, glaucous, thin, tough; flesh very light green, juicy, soft, aromatic, mild and sweet when fully ripe; quality very good.

Postman. 1. Hogg *Fruit Man.* 139. 1866. 2. *N. Y. Sta. Bul.* **114**:28. 1897.

On the Station grounds, plants of this variety are vigorous, spreading, and nearly free from mildew; fruit medium in size, roundish oval, nearly smooth, pale green, sweet; good.

Premier. 1. *Am. Pom. Soc. Rpt.* 162. 1920.

Introduced from England about 1897 by Brown Brothers, Ontario, Canada. Plants vigorous, free from mildew, productive; fruit large, round, greenish yellow; very good.

President. 1. *Jour. Hort.* **29**:158. 1875. 2. *N. Y. Sta. Bul.* **114**:28. 1897.

This may be a seedling raised by William Saunders, Ottawa, Canada. As grown here the plants are vigorous but somewhat susceptible to mildew; fruit large, long, red, slightly hairy, subacid; good.

Pretender. 1. *Jour. Hort.* **29**:158. 1875. 2. *N. Y. Sta. Bul.* **114**:28. 1897.

A berry of English origin. At this Station, the plants are fair growers and nearly free from mildew; fruit of medium size, yellow, smooth; fair.

Pride of Michigan. 1. *Am. Pom. Soc. Rpt.* 287. 1921.

This variety was found near South Haven, Michigan, and was introduced by Hurlbut & Cross, Bangor, Michigan, about 1916. Plants vigorous, healthier, hardier, and more productive than Downing which it resembles; fruit large, roundish oval, pale green; good.

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Priscilla. 1. *N. Y. Sta. Bul.* **114**:28. 1897.

In the Station gooseberry collection, the plants are not strong growers but are nearly free from mildew; fruit medium in size, oblong, light green, slightly mottled with red, slightly hairy, nearly sweet; inferior.

Puyallup. 1. *N. Y. Sta. Bul.* **114**:28, Pl. 8, fig. 64. 1897.

Puyallup Mammoth. 2. *Gard. Mon.* **28**:271. 1886.

Found in 1881 on the bank of the Puyallup river, near Puyallup, Washington, by W. M. Lee of Tacoma. Introduced in 1887 by J. M. Ogle of Puyallup. At this Station the plants are moderately vigorous and productive; fruit large, roundish oval, pale green, smooth, sweet; very good.

Queen Anne. 1. Lindley *Guide Orch. Gard.* 177. 1831. 2. *N. Y. Sta. Bul.* **114**:29. 1897.

Raised a century ago in England. As grown here the plants are moderately vigorous and nearly free from mildew; fruit of medium size, long-oval, smooth, greenish yellow, subacid; good.

Queen of Trumps. 1. *Gard. Chron.* 774. 1843. 2. *N. Y. Sta. Bul.* **114**:29. 1897.

Grown in England a century ago. Plants at this Station are vigorous and quite free from mildew; fruit large, oval, pale green, smooth, sweet; very good.

Queen of Whites. 1. *N. Y. Sta. Bul.* **114**:29. 1897.

On the Station grounds the plants of this variety are vigorous, with scarcely a trace of mildew; fruit large, roundish oval, smooth, pale yellowish green, sweet; good.

Queen Victoria. 1. *Gard. Chron.* 489. 1842. 2. *N. Y. Sta. Bul.* **114**:29. 1897.

Originated in England a century ago. In the Station plats the plants are not strong growers but are quite free from mildew; fruit of medium size, roundish, green, smooth; rather inferior; early.

Ralph. 1. *Can. Cent. Exp. Farm Bul.* **56**:24. 1907.

Originated by William Saunders, Ottawa, Canada, prior to 1890. Plants vigorous, upright, not as hardy nor productive as many sorts; fruit small, roundish oval, dull yellow, hairy, with thin skin, sweet; fair; early.

Red Champagne. 1. *Am. Pom. Soc. Cat.* 55. 1852. 2. *N. Y. Sta. Bul.* **114**:29. 1897.

Champagne. 3. Kenrick *Am. Orch.* 295. 1832.

A very old English variety once generally grown in eastern America. Plants at this Station are vigorous and quite free from mildew; fruit small, roundish, somewhat hairy, dark red, sweet; good. The American Pomological Society included the variety in its fruit catalog from 1852 to 1871.

Red Jacket. 1. *Jour. Hort.* 3d Ser. **3**:124. 1881. 2. Card *Bush-Fr.* 408. 1898.

An English variety of unknown origin, entirely distinct from the Red Jacket of American origin now known as Josselyn. Fruit large to very large, narrowing towards the apex.

Red Robin. 1. Hogg *Fruit Man.* 140. 1866. 2. *N. Y. Sta. Bul.* **114**:29. 1897.

Originated in England. As grown here the plants lack vigor but are nearly free from mildew; fruit large, oblong, slightly hairy, light red, sweet; inferior.

Red Warrington. 1. *Gard. Chron.* 69. 1841. 2. *N. Y. Sta. Bul.* **114**:29. 1897.
Aston's Seedling. 3. Christ *Handb.* 802. 1817.
Aston's Red. 4. Lindley *Guide Orch. Gard.* 178. 1831.
Warrington. 5. *Horticulturist* **2**:341. 1847–48.

This old English sort is little grown in America but has so many good qualities for a home plantation in which European gooseberries are wanted that it merits a place in this text. The fruits are of but medium size and are rather dull in color and are rendered somewhat less attractive by reason of stiff reddish hairs, but the quality is excellent and the plants are satisfactory in nearly every respect. It merits notice also because of its long and worthy past as an European variety under American conditions. Possibly no other variety from across the seas has been grown longer or more widely in America than Red Warrington. No information is available as to the origin of this variety except that it is an old sort, probably first having been grown in England early in the last century. The variety was probably brought to America nearly 100 years ago. The American Pomological Society added the sort to its recommended list of fruits in 1852 where it appeared until 1871 when it was dropped.

Plants medium in size, vigorous, upright-spreading, dense, productive, healthy; young shoots medium in stockiness and number, dull reddish brown overspread with gray scarf-skin; prickles thick, unusually strong, medium in length, thickened at the base, 1–3, often in triplets; leaf-buds small, short, conical, lean, semi-free; leaves numerous, small, cordate, with obovate lobes, medium in thickness and color, glossy, with hairy, crenate margins; petiole short, medium in thickness, pubescent, with very few glands near the base. Flowers midseason, medium in size, single; pedicels medium in thickness and length, pubescent; calyx-tube green, slightly pubescent; calyx-lobes medium in length, width and thickness, pubescent, green tinged with red; ovary pubescent, with small reddish glands. Fruit late; variable in size, averaging medium to above, roundish oval to long-oval, pale silvery green changing to a delicate pale red, showing faint reddish lines and light-colored flecks; skin with rather long, stiff hairs, slightly glaucous, thin, tough; flesh yellowish green, with tinge of red, juicy, firm, sprightly; quality good.

Ricardo. 1. McIntosh *Bk. Gard.* **2**:579. 1855. 2. *Can. Cent. Exp. Farm Bul.* **56**:26. 1907.

As grown in Canada this old English gooseberry is relatively free from mildew. Fruit large, oval, dull coppery red, nearly smooth, sweet mingled with pleasant acidity; very good.

Richland. 1. *Can. Cent. Exp. Farm Bul.* **56**:23. 1907.

This sort is the result of a cross between Houghton and Red Warrington, made by William Saunders, Ottawa, Canada, prior to 1890. Plants vigorous, upright, moderately productive; fruit medium in size, nearly round, dull orange-red, smooth, sweet but with an acid skin; good; midseason.

Rideau. 1. *Can. Exp. Farms Rpt.* 104. 1898.

Another of Saunders' seedlings. Plants vigorous, very productive, almost free from mildew; fruit medium to large, roundish, green, with pale distinct ribs, smooth, sweet mingled with pleasant acidity; good; late.

RED WARRINGTON

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Ringer. 1. *Flor. & Pom.* 121, Pl. 520, fig. 2. 1880. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Raised about 1860 by David Chippindale, Rishton, England, who introduced it a few years later. On the Station grounds the plants are moderately vigorous, nearly free from mildew; fruit medium in size, roundish, yellowish green, smooth, sweet; fair.

Roaring Lion. 1. Lindley *Guide Orch. Gard.* 175. 1831. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Originated in England a century ago and early brought to America. The American Pomological Society included the variety in its fruit catalog from 1873 to 1897. In the Station plats the plants lack vigor and are affected by mildew; fruit of medium size, oblong, smooth, light red, subacid; good.

Roe. 1. *Cult. & Count. Gent.* **41**:441. 1876.

This is a chance seedling found in an old Newburgh garden about 1860 and introduced fifteen years later by E. P. Roe, Cornwall, New York. Plants healthy, productive; fruit large, attractive, free from mildew; sweet; fair.

Roesch. 1. *Penn. Sta. Rpt.* **Pt. II**:226. 1898–99.

Lewis Roesch. 2. *Mass. Sta. Bul.* **44**:11. 1897.

Of American origin. Plants upright, very vigorous, productive; fruit uniform, very large, oval; skin thin, smooth, pale yellow; good.

Rough Red. 1. *Gard. Chron.* 761. 1842. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Grown in England many years ago. At this Station the plants are vigorous and free from mildew; fruit large, oblong, slightly hairy, red, acid; good; early.

Rover. 1. Lindley *Guide Orch. Gard.* 176. 1831. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Raised about 1865 by Joseph Brotherton, Nantwich, England, who introduced it a few years later. In the Station plats the plants lack vigor but are quite free from mildew; fruit large to very large, nearly round, smooth, dull green tinged with dull red.

Rumbullion. 1. Langley *Pomona* 124. 1729. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Of very ancient origin. As grown here the plants are vigorous and free from mildew; fruit small to medium in size, nearly round, slightly hairy, green, sweet; good.

Runge. 1. *U. S. D. A. Farmers' Bul.* **1024**:33. 1919.

A European variety similar to Columbus. It has been tested in the Hudson River Valley where it appears more productive and less susceptible to mildew than Columbus, ripening later.

Ruth. 1. *Can. Exp. Farms Rpt.* 104. 1898.

Raised by William Saunders, Ottawa, Canada, about 1890. Plants vigorous, productive, nearly free from mildew; fruit medium in size, oblong-oval, tapering at each end, green with paler veins, smooth, sweet, mild with a pleasant subacid flavor; fair; midseason.

Saunders. 1. *Can. Hort.* **22**:412. 1899.

Originated in the late nineties by William Saunders. Plants vigorous, free from mildew, moderately productive; fruit very large, roundish oval, brownish red, smooth, sweet mingled with a pleasant acidity; good; late.

Shiner. 1. Hogg *Fruit Man.* 141. 1866. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Grown in England for more than half a century. At this Station the plants are vigorous, spreading, productive and quite free from mildew; fruit large, slightly pear-shaped, pale green, smooth, sweet; good.

Silvia. 1. *Can. Cent. Exp. Farm Bul.* **56**:24. 1907.

This variety was raised by William Saunders, Ottawa, Canada, in the late nineties. Plants strong, upright-spreading, rather unproductive, free from mildew; fruit large, roundish, green tinged with dull red, smooth, subacid; good; midseason.

Sir George Brown. 1. Hogg *Fruit Man.* 141. 1866. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Of English origin. On the Station grounds the plants are vigorous, large, spreading, but somewhat susceptible to mildew; fruit large, oblong, greenish white, nearly smooth, sweet; good.

Slaughterman. 1. Hogg *Fruit Man.* 142. 1866. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Long grown in England. At this Station the plants lack vigor and are susceptible to mildew; fruit large, oblong, smooth, red; good.

Smiling Beauty. 1. Lindley *Guide Orch. Gard.* 177. 1831. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Originated in England a century ago. In the Station plats the plants are vigorous but affected by mildew; fruit large, roundish oval, greenish yellow, sweet; good.

Smith. 1. *N. Y. Sta. Bul.* **114**:19, Pl. II, fig. 4. 1897.

Smith's Improved. 2. Downing *Fr. Trees Am.* 504. 1869.

Originated more than half a century ago by a Dr. Smith, Windsor, Vermont, from seed of Houghton, and thought to be a hybrid between American and European gooseberries. In 1871 the variety was added to the American Pomological Society's fruit catalog list. Plants vigorous, with curving canes and rather slender branches; berries smooth, dull pale green, sometimes spotted with red, with light bloom; flesh juicy, sweet; good.

Smithers. 1. *Am. Pom. Soc. Rpt.* 162. 1920.

Mentioned by the State Nursery & Seed Company, Helena, Montana, as "a purple variety of medium size, very prolific and hardy."

Snowball. 1. Lindley *Guide Orch. Gard.* 182. 1831. 2. *Can. Cent. Exp. Farm Bul.* **56**:26. 1907.

Originated in England a century ago. In Canada the plants are free from mildew; fruit large, oval, dull copperish red, nearly smooth, sweet mingled with pleasant acidity; fair.

Snowdrop. 1. Lindley *Guide Orch. Gard.* 182. 1831. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Raised by Joseph Bratherton, Nantwich, England, about 1840. At this Station the plants are moderately vigorous and nearly free from mildew; fruit large, pear-shaped, smooth, light green, subacid; fair.

Speedwell. 1. Lindley *Guide Orch. Gard.* 176. 1831. 2. *N. Y. Sta. Bul.* **114**:30. 1897.

Originated in England a century ago. On the Station grounds the plants are moderately vigorous and free from mildew; fruit large, roundish, nearly smooth, red, sweet; fair.

Sportsman. 1. Brookshaw *Hort. Reposit.* 1:95, Pl. L, fig. 1. 1823. 2. *N. Y. Sta. Bul.* 114:30. 1897.

Raised by John Wilmot, Isleworth, England, early in the last century. In the Station gooseberry collection the plants are vigorous and quite free from mildew; fruit medium in size, roundish, nearly smooth, red, subacid; good.

Stein. 1. *Rural N. Y.* 56:646. 1897.

Introduced by W. B. Fulton, Kirkwood, Ohio, as a cross between Houghton and an old German sort. Plants dwarfish, healthy, free from mildew, very productive; fruit medium in size, round, dark green; good; midseason.

Stella. 1. Hogg *Fruit Man.* 143. 1866. 2. *N. Y. Sta. Bul.* 114:30. 1897.

An old English variety, plants of which, in the Station plats, are moderately vigorous, and but slightly affected by mildew; fruit large, oblong, smooth, pale green, subacid; fair.

Stockwell. 1. Hogg *Fruit Man.* 143. 1866. 2. *N. Y. Sta. Bul.* 114:30. 1897.

Originated in England many years ago. As grown here the plants are moderately vigorous and but slightly susceptible to mildew; fruit large, oblong, smooth, light green, sweet; good.

Strubler. 1. *Am. Pom. Soc. Rpt.* 127. 1891. 2. *Mich. Sta. Bul.* 169:163. 1899.

Grown by Phil Strubler, Naperville, Illinois. Plants vigorous; fruit large, roundish oval, greenish yellow; good.

Succeed. 1. *Jour. Hort.* 9:127. 1865. 2. *N. Y. Sta. Bul.* 114:30. 1897.

In the Station plats the plants are moderately vigorous and productive, free from mildew; fruit large, oblong, smooth, yellowish green, sweet; good.

Sulphur. 1. *Lond. Hort. Soc. Cat.* 79. 1842. 2. *N. Y. Sta. Bul.* 114:30. 1897.

Of ancient origin in England. Although resembling Early Sulphur, the variety is distinct. At this Station the plants are vigorous, upright, very free from mildew; fruit medium in size, round, nearly smooth, yellow, sweet; good.

Sunset. 1. *N. Y. Sta. Bul.* 114:30. 1897.

In the Station gooseberry collection the plants are vigorous and free from mildew; fruit large, oblong, nearly smooth, yellowish green, sweet; very good.

Sutherland. 1. *Can. Hort.* 13:273. 1890.

Raised about forty years ago by George Sutherland, Meaford, Ontario, probably as a seedling of Downing. Plants large, vigorous, upright, very productive, free from mildew; fruit large, roundish oval, smooth, pale green; fair.

Tally Ho. 1. *Gard. Chron.* 118. 1841. 2. *N. Y. Sta. Bul.* 114:31. 1897.

This old English variety, on the Station grounds, produces large, vigorous plants, free from mildew; fruit large, pear-shaped, pale green, nearly smooth, sweet; good.

Telegraph. 1. McIntosh *Bk. Gard.* 2:579. 1855. 2. *N. Y. Sta. Bul.* 114:31. 1897.

Of English origin, quite generally disseminated on the continent. As grown at this Station, the plants are vigorous and spreading; fruit large, oblong, smooth, pale green, sweet; fair; late.

Thatcher. 1. *Jour. Hort.* N. S. **29**:158. 1875. 2. *N. Y. Sta. Bul.* **114**:31. 1897.

At this Station the plants are moderately vigorous and but little affected by mildew; fruit large, oblong, smooth, greenish yellow, subacid; good; early.

Thomas Williams. 1. *N. Y. Sta. Bul.* **114**:31. 1897.

As grown at the Station, the plants are moderately vigorous and free from mildew; fruit large, oblong, yellow, smooth, sweet; very good.

Thumper. 1. *Gard. Chron.* 118. 1841. 2. *N. Y. Sta. Bul.* **114**:31. 1897.

Originated in England nearly a century ago. As tested in the Station gooseberry collection, the plants are moderately vigorous, very productive, and but little affected by mildew; fruit large, oblong, smooth, light green, sweet; good.

Tichborne. 1. *N. Y. Sta. Bul.* **114**:31. 1897.

On the Station grounds the plants are vigorous, slightly affected by mildew; fruit large, oblong, smooth, light red, subacid; poor.

Transparent. 1. *Flor & Pom.* 121, Pl. 520, fig. 1. 1880. 2. *N. Y. Sta. Bul.* **114**:31. 1897.

This variety was raised more than fifty years ago by Joseph Bratherton, Nantwich, England. On the grounds of this Station, the plants are moderately vigorous and but slightly affected by mildew; fruit large, round, nearly smooth, light green, acid; inferior.

Trebla. 1. *Am. Pom. Soc. Rpt.* 162. 1920.

Described by Albert F. Etter, Ettersburg, California, as a hybrid gooseberry with Champion as one of the parents. Plants very vigorous and productive, withstanding hot weather well.

Tree. 1. *Mich. Hort. Soc. Rpt.* 184. 1894. 2. *Ohio Sta. Bul.* **98**:75. 1899.

This is an American wilding which resembles Mountain but is distinct. Plants vigorous but slender, moderately productive; fruit medium in size, green; fair; late.

Triumph. 1. Christ *Handb.* 812. 1817. 2. *Rural N. Y.* **45**:493. 1886. 3. *N. Y. Sta. Bul.* **114**:31, Pl. 8, fig. 66. 1897.

An old European variety brought to the notice of American growers by George Achelis, West Chester, Pennsylvania, more than forty years ago. The American Pomological Society listed the variety in its catalog fruit list in 1897 but dropped it in 1909. Plants vigorous, productive; fruit large, oblong or roundish, pale greenish yellow, smooth, sweet; very good.

Trumpeter. 1. Lindley *Guide Orch. Gard.* 175. 1831. 2. *Can. Cent. Exp. Farm Bul.* 56:26. 1907.

An old variety from England. Plants vigorous, spreading, productive; fruit large, oval to oblong or slightly pear-shaped; skin thick, yellowish green; moderately sweet; fair.

Try Me Oh. 1. *N. Y. Sta. Bul.* **114**:31. 1897.

Plants at this Station are moderately vigorous and very slightly subject to mildew; fruit medium in size, oblong, pale green, nearly smooth, subacid; good.

Unity. 1. *N. Y. Sta. Bul.* **114**:31. 1897.

As grown at this Station the plants are moderately vigorous and but slightly affected by mildew; fruit large, roundish oblong or pear-shaped, smooth, green, sweet; good.

Utah. 1. *Rural N. Y.* **54**:7. 1895.

H. L. Fairchild, Nichols, Connecticut, had the sort in a variety collection on his grounds in 1894. Plants upright, productive; fruit variable, medium to large, dark red; good.

Van Fleet. 1. Hedrick *Cyc. Hardy Fr.* 310. 1922.

Dr. Van Fleet. 2. Lovett *Cat.* 9, fig. 1916.

Originated in 1902 by Dr. Walter Van Fleet, Washington, D. C., as a hybrid between Houghton and Keepsake and Industry; introduced in 1916 by J. T. Lovett, Little Silver, New Jersey. Plants vigorous, very productive; berries large, nearly round, light red when fully ripe; skin thin; flesh tender, with few seeds, rich; very good.

Veteran. 1. *N. Y. Sta. Bul.* **114**:31. 1897.

Plants in the Station gooseberry collection are moderately vigorous and nearly free from mildew; fruit medium in size, pear-shaped, nearly smooth, dark red, sweet; poor.

Victoria. 1. *Gard. Mon.* **12**:156. 1870.

An English gooseberry once grown sparingly in the Middle West. Plants hardy, vigorous, productive and nearly immune to mildew; fruit large, nearly smooth, red; good.

Village Green. 1. *Gard. Chron.* 1620. 1871. 2. *N. Y. Sta. Bul.* **114**:31. 1897.

Plants at this Station are vigorous and but slightly susceptible to mildew; fruit of medium size, oblong, smooth, pale green, subacid; good.

Viper. 1. Lindley *Guide Orch. Gard.* 176. 1831. 2. *N. Y. Sta. Bul.* **114**:32. 1897.

The plants of this variety on the Station grounds are moderately vigorous and quite free from mildew; fruit of medium size, roundish oblong, smooth, yellowish green, nearly sweet; fair.

Visit. 1. *Jour. Hort.* **21**:121. 1871. 2. *N. Y. Sta. Bul.* **114**:32. 1897.

As grown here the plants are moderately vigorous and nearly free from mildew; fruit large, oblong, nearly smooth, pale green, subacid; fair.

Wakeful. 1. *Jour. Hort.* **11**:233. 1885. 2. *N. Y. Sta. Bul.* **114**:32. 1897.

Of English origin. Station plants are moderately vigorous, slightly affected by mildew; fruit large, nearly smooth, yellow, sweet; good.

Watson. 1. *N. Y. Sta. Bul.* **114**:32. 1897.

Watson Seedling Tree. 2. *Ann. Hort.* 131. 1893.

Raised about 1875 by Samuel Wilson, Mechanicsville, Pennsylvania. In 1879 the variety was being grown extensively by William Watson, Provo City, Utah. Station plants are very vigorous, spreading, productive, and quite free from mildew; fruit large, oblong, smooth, dark red, sweet; very good.

Weathercock. 1. McIntosh *Bk. Gard.* **2**:579. 1855. 2. *N. Y. Sta. Bul.* **114**:32. 1897.

In the Station gooseberry collection the plants are moderately vigorous, productive, with slight traces of mildew; fruit large, round, smooth, yellowish green, sweet; good.

Wellington Glory. 1. Lindley *Guide Orch. Gard.* 177. 1831. 2. Kenrick *Am. Orch.* 297. 1832. 3. *N. Y. Sta. Bul.* 114:32. 1897.

Wellington. 4. *Am. Pom. Soc. Cat.* 18. 1897.

For many years this has been one of the standard European sorts grown in America. It is very similar to Chautauqua and no doubt the two are often confused. The vigor and productiveness of the plants and the beauty and high quality of the fruits both recommend it. The original plant of this variety was found in England more than a century ago. The sort was early brought to America where it was once grown rather extensively. As distributed at present by most American nurserymen, the variety is identical with or closely resembles Chautauqua. The American Pomological Society added the variety to its fruit list in 1897.

Plants large, vigorous, upright-spreading, dense, very productive, healthy; young shoots medium in stockiness, numerous, dark reddish brown scantily overspread with gray scarf-skin; prickles medium in thickness, strong, short, 1–3, more often single, interspersed with bristles between the nodes toward the base of the canes; leaf-buds large, long, conical, moderately plump, semi-free; leaves medium in size, thickness and color, cordate, with obovate lobes, rugose; with hairy, crenate margins; petiole medium in length, slender, greenish, pubescent, glandular at the base. Flowers early, medium in size, single; pedicels medium in length and thickness, pubescent; calyx-lobes medium in length, width and thickness, pubescent, dull red; ovary heavily pubescent. Fruit midseason, adheres well; variable in size, averaging large, roundish oval to long-oval, light silvery green mingled with a faint tinge of yellow at full maturity; skin smooth, glaucous, medium in thickness, tough, translucent; flesh pale green, juicy, firm, mild and sweet when fully ripe, but with considerable sprightliness next to the skin; quality good to very good.

Westerman Favorite. 1. *Gard. Mon.* 11:271. 1869.

A seedling of an English gooseberry raised more than fifty years ago at Sharon, Pennsylvania. Fruit very large; considered equal to any English variety.

White Eagle. 1. *Mag. Hort.* 1:207. 1835. 2. *N. Y. Sta. Bul.* 114:32. 1897.

Eagle. 3. Hogg *Fruit Man.* 126. 1866.

Cook's White Eagle. 4. Downing *Fr. Trees Am.* 503. 1869.

Several characters of White Eagle make it desirable in plantations of European gooseberries in this country. Thus, it is about the latest of all the European varieties; the fruits while variable in size are very large and attract attention because of their pear shape and yellow color at maturity. The berries are sweet at full maturity and while not of the best are very good in quality. The bush makes only a moderate growth, but usually mildews but little. There seems to be no trace of the place or time of origin of this gooseberry. Presumably the original plants were introduced to this country from England, and the variety has been growing in American gardens for nearly a century.

Plants above medium in height and vigor, upright-spreading, dense, productive, healthy; young shoots medium in stockiness and number, smooth becoming roughish with age, reddish brown overlaid with dull gray scarf-skin; prickles of medium thickness, length and number, often in twos and threes, interspersed with but few bristles; leaf-buds medium

WELLINGTON GLORY

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WHITE EAGLE

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in size and length, plump, semi-free; leaves medium in size, thickness and color, cordate, with deeply cut obovate lobes, glossy, rugose, with hairy, crenate margins; petioles short, of medium thickness, pubescent, sometimes glandular near the base. Flowers late, medium in size, 1–3; pedicels medium in size and thickness, glabrous; calyx-tube greenish red, pubescent; calyx-lobes medium in length, width and thickness, dull red and green; ovary slightly pubescent. Fruit very late; variable in size, sometimes very large, pear-shaped, light silvery green, with faintest yellow tinge at full maturity, dull; skin nearly smooth, glaucous, medium in thickness, tough; flesh pale green, not very juicy, firm, sprightly becoming nearly sweet at full maturity; quality fair.

White Hare. **1.** *N. Y. Sta. Bul.* **114**:32. 1897.

At this Station the plants are but moderately vigorous and considerably affected by mildew; fruit large, round, smooth, greenish white, subacid; good.

Whitesmith. **1.** *Lond. Hort. Soc. Cat.* 79. 1842. **2.** Hogg *Fruit Man.* 364. 1884. **3.** *N. Y. Sta. Bul.* **114**:32. 1897.

Woodward's Whitesmith. **4.** Forsyth *Treat. Fr. Trees* 95. 1802. **5.** Brookshaw *Pomona* Pl. IV. 1817. **6.** *Gard. Chron.* 868. 1864.

Lancashire Lass. **7.** Lindley *Guide Orch. Gard.* 177. 1831.

In some parts of the United States and Canada Whitesmith is considered the best of the English varieties grown on this side of the Atlantic. The plants are very large and vigorous and are usually productive. The fruit ripens early, and while not of the largest, is above medium in size and is particularly good in quality, the flesh being juicy, tender and very pleasantly flavored. Unfortunately the plants usually mildew rather severely. This is an old English variety, the date and place of origin of which is unknown. It was grown in England, however, in 1802, when William Forsyth spoke of it as one of the newer sorts. The variety has long been known in the United States. In 1852 the American Pomological Society added the sort to its fruit catalog list, a place it still retains, the name having long since been shortened to Whitesmith.

Plants above medium in size, vigorous, upright-spreading, somewhat open, productive; young shoots medium in thickness and number, reddish brown overlaid with gray scarf-skin; prickles slender, strong, medium in length, usually in ones; leaf-buds large, long, obtuse, plump, semi-free; leaves medium in size, thickness and color, cordate, with obovate, shallowly cut lobes, glossy, rugose, with hairy, crenate to nearly serrate margins; petiole short, medium in thickness, green, pubescent, with few glands. Flowers early, medium in size, usually single; pedicels medium in length and thickness, pubescent; calyx-tube green, pubescent; calyx-lobes medium in length, width and thickness, pubescent beneath, tinged dull red; ovary with short, heavy pubescence, eglandular. Fruit early, above medium in size, roundish oval, light silvery green, with faint tinge of yellow at full maturity; skin smooth, glaucous, thin, tender; flesh light green, juicy, firm but tender, pleasantly flavored, sweet; quality good.

William Watson. **1.** *N. Y. Sta. Bul.* **114**:33. 1897.

On the Station grounds the plants are moderately vigorous, with little mildew; fruit medium in size, oblong, nearly smooth, yellow, sweet; very good.

Wonderful. 1. *Gard. Chron.* 84. 1841. 2. *N. Y. Sta. Bul.* **114**:33. 1897.

This is probably a variety of English origin, although Hogg credits William Saunders, London, Ontario, with having raised it. Plants at this Station are moderately vigorous, nearly free from mildew; fruit of medium size, round, nearly smooth, dark red, quite sweet; good.

Yaxley Hero. 1. Lindley *Guide Orch. Gard.* 175. 1831. 2. *N. Y. Sta. Bul.* **114**:33. 1897.

As grown at this Station the plants are moderately vigorous and productive; fruit large, round, smooth, red, sweet; good.

WHITESMITH

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PART III

STRAWBERRIES

CHAPTER XIV

THE EVOLUTION OF CULTIVATED STRAWBERRIES

The strawberry has remarkable powers of adapting itself to climates and soils. In consequence it is found in one species or another in almost every part of the globe. But in general the many species are lovers of cool climates and of dry, loose, warm soils. Under culture strawberries belong distinctly to cold climates. In tropical and sub-tropical countries, the plants grow but languidly, refuse to bear abundantly, and the fruits are deficient in size, color, flavor, and the delicate fragrance from which the strawberry derives its generic name *Fragaria*. The plants are most luxuriant, and the fruits are most pleasing to eye and palate where greatest hardihood to cold is required. Wild or cultivated, strawberries are little esteemed in warm countries. Accordingly, they are valued most, and came to their present high estate as cultivated plants in the colder parts of the temperate zones, especially in Europe and North America, to whose peoples they owe domestication.

The strawberry is not only indigenous in many climates and soils, but wherever it grows, it is usually a very common plant. It propagates itself rapidly by runners and grows readily from seeds. Moreover, the seeds are widely and plentifully diffused by birds and animals. Therefore, in strictly agricultural regions, there has been little need to domesticate strawberries because of the abundance of the wild crops. The strawberry differs also, in a very important particular from most other domesticated fruits. Cultivation does not improve its flavor. Preference is often given to the wild fruits under the theory that fine flavor diminishes in proportion to greater size. It is only since we have had the modern strawberry, a matter of a century or thereabouts, that high quality has been embodied in large bulk

The strawberry has but lately come under cultivation. The ancient Greeks and Romans did not cultivate it. In France and England it is of a comparatively recent period among cultivated fruits. Its history dates back scarcely more than four centuries in French and English gardens.

After the currant and gooseberry, however, it has been longest cultivated of small fruits in North America, where it has been grown in gardens perhaps two centuries and in commercial plantations about a century. Indeed, as we shall see later, and as the study of its botany shows, the garden strawberry may well be called a New World fruit as it is derived mainly from species native of the Americas, and New World varieties, which greatly outnumber those of the Old World, have originated almost wholly in North America.

The manner of domestication and evolution of the strawberry, as to main events, persons concerned, dates and places, are fairly well known. Its botanical derivation, however, is still obscure despite the fact that species of wild strawberries of pomological promise do not number a dozen and but three or four of these have as yet awakened the interest of breeders. The difficulty is that the few species under cultivation have been hybridized to such an extent that a vast entanglement of strawberries has resulted. The early nomenclature of cultivated forms is a labyrinth of confusion in which no one can now find his way with surety.

Several notable botanists and pomologists have studied Fragaria, and the history and development of its cultivated offspring assiduously, yet no two arrive at the same conclusions as to the exact origin of the modern cultivated strawberry. All historical evidence seems to have been collected and examined by competent minds, without establishing whether the cultivated strawberry belongs to a single species, and what, or whether it is a hybrid and of what.

If the reader will turn to Chapter XV, *The Systematic Botany of the Strawberry*, he will find descriptions and botanical data on all species of Fragaria, varieties of which are now cultivated or have been at one time or one place or another, whence have come by a tortuous route of hybridization the several thousand sorts grown in modern times. It is the purpose in the next few pages to give the history of the domestication of these several species and to tell as well as may be what part they have played in the evolution of our modern strawberry. The five species are *F. vesca*, *F. moschata*, *F. viridis*, *F. virginiana*, and *F. chiloensis*. These have been named in order of their introduction and in that order will be considered.

THE EUROPEAN OR WOOD STRAWBERRY

The common strawberry of Europe, the European or wood strawberry, is *Fragaria vesca*. This is the species in the minds of Old World pomologists

since the earliest accounts of edible plants. It is the classical strawberry of Virgil, Ovid, and Pliny who mention it as a wild plant but not as an inhabitant of gardens. There seems to be documentary proof that this strawberry was cultivated in France as early as the fourteenth century, but it is usual to place its introduction in the fruit garden in the fifteenth century. Certainly Ruellius speaks of it as a garden plant in 1536 as do a half dozen or more other botanists and herbalists of the century as recorded by Sturtevant.[1]

There is no dearth of information as to when introduced and as to what the wild strawberry of Europe was at the time of its introduction into European gardens. Sturtevant, who had unusual opportunities to study the history of edible plants, found many discussions and descriptions of wild and cultivated strawberries in the sixteenth and the early part of the seventeenth centuries. He [2] gives the following:

"The strawberry is figured fairly well in the *Ortus Sanitatis*, 1511, c. 188, but there is no mention of culture. Ruellius, however, 1536, speaks of it as growing wild in shady situations, says gardens furnish a larger fruit, and mentions even a white variety. Fuchsius, 1542, also speaks of the larger garden variety, and Estinne, 1545, (perhaps also in his first edition of the *De Re Hortensi*, 1535), says strawberries are used as delicacies on the table, with sugar and cream, or wine, and that they are of the size of a hazelnut; he says the plants bear most palatable fruit, red, especially when they are fully ripe; that some grow on the mountains and woods, and are wild, but that some cultivated ones are so odorous that nothing can be more so, and that these are larger, and some are white, others red, yet others are both red and white.

"Cultivated strawberries are also noted by many authors of the sixteenth century, as by Mizaldus, 1560; Pena and Lobel in 1571; and in 1586 Lyte's *Dodoens* records, 'they be also much planted in gardens.' Porta, 1592, regards them as among the delicacies of the garden and the delights of the palate. Hyll, 1593, says 'they be much eaten at all men's tables,' and that 'they will grow in gardens unto the bigness of a mulberry.' *Le Jardinier Soli aire*, 1612, gives directions for planting, and Parkinson, 1629, notes a number of varieties. As to size, Dorstenius, 1540, speaks of them as of the size of a hazelnut; Bauhin, 1596, as being double the size of the wild; the *Hortus Eystettensis*, 1613, figures berries one and three-eighths inches in diameter; Parkinson, in 1629, as 'neere five inches about;' Plat, 1653, as two inches about in bigness; Vaillant, 1727, as an inch and sometimes more in diameter."

[1] Hedrick, U. P. *Sturtevant's Notes on Edible Plants* 274. 1919.

[2] Hedrick, U. P. *Ibid.* 274. 1919.

Bunyard finds still earlier records than those given by Sturtevant. He[1] writes:

"It is not easy to fix an exact date for the first mention of the Strawberry, but it is generally held that to Nicolas Myrepsus, a Greek doctor of the thirteenth century, must be accorded the honour, Both in Greek and Roman literature the *Arbutus* and the Strawberry were g ven a common name, a result of the theory of affinities then so much in vogue Pliny, however, distinguished the difference in flavour, and the name 'fragum' must, no doubt, have been first applied to the fragrant Strawberry. It does not seem, however, that it was then a cultivated plant, and it is usual to place its introduction to cultivation in the fifteenth century. There is, however, ample evidence that it was found in gardens long before this; documents exist which prove it was thus grown in the early part of the fourteenth century in France. The Royal Gardens at the Louvre under Charles V. possessed no fewer than 1200 plants, and many other records testify to the appreciation of the fruit by its presence in French gardens at this period."

From its earliest cultivation to the present time this strawberry has varied but little as grown in European gardens and is seemingly devoid of possibility of great improvement. Cultivated variet es, after 300 years in the garden, are scarcely better in plant and fruit characters than the wild type. The fruits on wild or cultivated plants are small and delicate and borne sparingly on plants which are not at all self-assertive and need watchful care in the garden. Some increases in the size of the fruits have been noted in cultivated varieties, but Bunyard, in the reference given, states that there are instances recorded, and gives examples, of large-fruited forms found in the wild and draws the conclusion that greater size in fruit of the pure-bred species is not only and always associated with cultivation.

It is impossible to say how many varieties of *F. vesca* have been cultivated in Europe, but no one of them has ever been widely or commonly grown in America. It is to be found now only in the plantations of botanic gardens or plant breeders on this side of the Atlantic. The Fressant seems to have been one of the first and the most prominent of the varieties of this species in England and France, and was at one time much grown in the fruit-growing regions about Paris.

Reference to the discussion of the botany of this species, page 373, shows that in Europe there are several varieties and forms besides the type, some of which have aroused interest as curiosities but none of which

[1] *Jour. Roy. Hort. Soc.* 39:541. 1913–14.

excepting the Alpine strawberry, var. *semperflorens efflagellis*, to be discussed later, has found a place in fruit gardens.

It remains now to be said that *F. vesca* is found rather commonly in its var. *Americana* in eastern North America, and that, as with the type species in Europe, no garden variety of note has ever arisen from it. Here, as abroad, plants and fruits fall far short of the common garden strawberry.

The Alpine strawberry, *F. vesca semperflorens efflagellis*, is the everbearing strawberry of Europe and has been cultivated more or less, formerly more than now, for its long-fruiting season. It is a native of the southern slopes of the Alps, hence the name Alpine. From its everbearing habit it is sometimes called the Monthly, and the Perpetual strawberry. There are several points of difference between this form and the type, chief of which is, of course, the summer and autumn-fruiting habit of the variety; but, besides, the fruits are seldom as elongate, and the peduncles are longer and bend downward with the weight of fruit

This strawberry was described as a garden plant in the middle of the eighteenth century but was known by botanists at least 200 years before. Possibly some 50 or 60 varieties of these everbearing strawberries have been grown in Europe with more or less success, a few with marked success. Several of these have been white-fruiting sorts, and one, the Bush Alpine, was runnerless, of which there was also a white-fruited variety. From time to time varieties of Alpine strawberries have been introduced in America, usually with extravagant claims as to the autumn-bearing habit, but no pure-bred garden variety of it has proved of value in this country.

THE HAUTBOIS STRAWBERRY

Another European strawberry long under cultivation but now of little importance is *Fragaria moschata*, the Hautbois strawberry, distinguished from *F. vesca* chiefly by the larger plant, an inflorescence that is almost or quite umbellate, and a strong musky flavor in the fruit. Under cultivation there have been hybrids with *F. vesca* and no doubt these have occurred in the wild as well so that there is more or less difficulty in keeping the two species distinct. The flowers of this species are dioecious and since in its early cultivation nothing was known of sex in plants, males were destroyed, whereupon, of course, the females bore no fruits. While common in many parts of Europe, this species is not as widely distributed as is *F. vesca* in the Old World.

The botanists and herbalists of the sixteenth century mention this strawberry as a cultivated plant, and from time to time garden varieties were introduced, such as the Apricot, Framboise, and Royal in France, and the Black, Globe, and Prolific in England. In Germany, near Hamburg, a variety or varieties of *F. moschata* are still grown and much liked for their rich flavor and musky odor, but are seldom profitable because of the small size of the berries and unproductiveness of the plants.

FRAGARIA VIRIDIS

This exceedingly variable species is now and probably has been cultivated for several centuries in Europe as a curiosity and somewhat for its fruits, especially when hybridized with one of the two preceding species. It is a very dwarf, densely hairy plant bearing small fruits none too delectable in the pure species. It has been hybridized with *F. vesca* and *F. moschata* to produce sorts grown in France and Germany. None of its offspring are of garden importance now and it may be eliminated as a factor in the improvement of the cultivated strawberry of the future. It is much more interesting in its botany, which the reader should look up on page 377, than in its pomology.

In studying the descriptions and illustrations of plant and fruit of these three European strawberries one quickly comes to the conclusion that none of them responds well to cultivation or to such selection as has been practiced to secure better varieties. Cultivated sorts have differed little from their wild prototypes. The strawberry, it would seem, could never have reached great prominence as a cultivated fruit had all dependence been placed on European species

THE AMERICAN WILD, SCARLET, OR VIRGINIAN STRAWBERRY

The commonest strawberry in North America, certainly in the eastern part of the continent, is *Fragaria virginiana* and its botanical varieties which pass under the common names wild strawberry, scarlet, and Virginian strawberry. This is the common strawberry which was mentioned by the early European explorers and pioneers on our Atlantic seaboard and is the wild strawberry of the fields and woods which has given a delectable fruit to the inhabitants of eastern North America, whether Indians or whites, during all time.

In the seventeenth century this strawberry was taken to Europe, the exact date, as recorded by Jean Rodin, gardener to Louis XIII, being

1624. From France, in turn, it was taken to England where it seems to have immediately found favor for it was soon widely cultivated by the English who made importations of both seeds and plants from the United States and Canada. In time it became an escape from cultivation, and undoubtedly hybrids arose in both gardens and the wild in many parts of Europe.

The berries of the Virginian strawberry are handsome in color and form and delicious in taste and aroma but run small and no art of the cultivator seems to increase their size. For more than a hundred years only the wild form could be found in English gardens despite the widely different environment under which it must have been grown both there and on the continent. Like the European species it seemed incapable of great variation. Two hundred years after its introduction in Europe, and after widespread cultivation in Great Britain, but twenty-six named sorts were listed by Barnet, writing for the *Transactions of the London Horticultural Society* in 1824.

A few varieties of the Virginian are still grown in England, chiefly for jam, and in the list of varieties described in this text as American sorts perhaps a score are pure-bred offspring of *Fragaria virginiana*. As a hybrid, as we shall see, it probably plays a very important part.

The several botanical varieties described in Chapter XV vary considerably in their value in the garden; therefore for use in attempts at amelioration or for plant breeding. Unfortunately these comparative values are not yet as well determined as might be wished.

THE CHILEAN STRAWBERRY

The most conspicuous landmark in the domestication of the strawberry is the introduction of the Chilean, *Fragaria chiloensis*, in Europe early in the eighteenth century. This species, as will be set forth in the discussion of its botany, is a native of western South and North America in the mountain ranges near the coast and might perhaps better be called the Pacific strawberry. It was taken from Chile to France in 1712 by a Captain Frezier, thence to England at least as early as 1727.

Little seems to have come from the Chilean strawberry for a hundred years after its introduction into Europe and then its rapid amelioration became one of the most remarkable phenomena recorded in pomology. Within a half century after this marked improvement began, as indicated by the introduction of many new and better varieties, the cultivation of all

other species had practically ceased, and the strawberry in North America and Europe had passed from a minor to a major fruit in the two continents.

There has been much speculation as to what the stimulus or stimuli were that started the strawberry on this unwonted career of improvement. Perhaps no other fruit has had more careful and diligent study as to origin and the means employed to bring plant and product to present perfection than the strawberry. Beginning with Duchesne in 1766 down to the present time, one or more men well trained in botany and pomology have searched the records and studied wild and cultivated plants of this fruit to determine its origin, the means of amelioration, and in particular the stimuli that started it, a hundred years ago, to produce larger and better-flavored fruits.

Space does not admit of a detailed review of the work of these strawberry students since the results as published run into several monographs and many technical papers. Perhaps what has been learned in the extended and excellent studies of the origin of this fruit may be best summarized by quoting from the four men who have last given the evolution of the strawberry studious attention with the view of determining how the large-fruited strawberries came into existence.

Sturtevant believed that the modern strawberry is derived through hybridization of two European and two American species. He [1] summarizes his belief as follows:

"The modern varieties under American culture have usually large berries with more or less sunken seeds, with the trusses lower than the leaves, and seem to belong mostly to the species represented in nature by *Fragaria Virginiana*, although there are supposed hybridizations with *Fragaria Chiloensis*, and, in the higher flavored class, with *Fragaria elatior*. Certain it is that in growing seedlings from our improved varieties reversions often occur to varieties referable to the Hautbois and Chilian sorts, from which hybridization can be inferred. I have noted as of common occurrence that seedlings from high-flavored varieties are very likely to furnish some plants of the Hautbois class, and even scarcely, if at all, distinguishable from named varieties of the Hautbois with which there has been opportunity for close comparison. From large berried varieties of diminished flavor, and which occasionally throw hollowed berries, the reversion occasionally produces plants unmistakably of the Chilian type. In other cases we have noticed reversions to forms of *Fragaria vesca*. These circumstances all lead towards establishing the mingled parentage of our varieties under cultivation, and render the classification of cultivated varieties somewhat difficult."

[1] *Trans. Mass. Hort. Soc.* 200, 201. 1888.

Bailey, writing a few years later than Sturtevant, doubts the theory that hybridity was the starting point of the present race of cultivated strawberries and concludes, after a painstaking review of the literature and a thorough study of wild and cultivated strawberry plants, that the garden strawberry is a direct modification of *F. chiloensis*. His [1] answer to the question under which he writes "Whence Came the Cultivated Strawberry?" is:

"There is only one conclusion, therefore, which fully satisfies all the demands of history, philosophy, and botanical evidence, and this is that the garden strawberries are a direct modification of the Chile strawberry. The initial variation occurred when species were thought to be more or less immutable, and, lacking exact historical evidence of introduction from a foreign country, hybridization was the most natural explanation of the appearance of the strange type. This modified type has driven from cultivation the Virginian berries, which were earlier introduced into gardens; and the original type of the Chilian strawberry is little known, as it tends to quickly disappear through variation when impressed into cultivation. The strawberry is an instance of the evolution of a type of plant, in less than fifty years, which is so distinct from all others that three species have been erected upon it, which was uniformly kept distinct from other species by the botanists who have occasion to know it best, and which appears to have been rarely specifically associated with the species from which it sprung."

Bunyard,[2] an able and careful English pomologist and a student of the origin and evolution of hardy fruits, is of the opinion, as set forth in the following brief quotation from an admirable paper on *The History and Development of the Strawberry*, that this fruit is an admixture of species. The quotation is as follows:

"In conclusion the writer submits that the history of the Strawberry offers but little support to those who believe in the paramount influence of cultivation in the production of new forms. Its entire development has been due to the introduction of new species having some quality not possessed by existing varieties and its admixture with these by cross-breeding."

The last investigator to publish at length on the origin of the strawberry is Fletcher[3] whose monograph on *The Strawberry in North America* is a model of excellence in the study of the evolution of a cultivated plant. In this work the whole trend of Fletcher's discussion of the origin of the strawberry shows his belief that the garden form is a hybrid.

[1] Bailey, L. H. *Am. Nat.* **28**:293. 1894.

[2] *Jour. Roy. Hort. Soc.* **39**:550. 1913–14.

[3] Fletcher, S. W. *The Strawberry in North America* 137, 138. 1917.

"Extended study of the botanical characters of the several species, and of their behavior under cultivation and hybridization, is necessary to establish with certainty the origin of the garden form. This has not yet been given, but the presumption is strong, from the foregoing evidence, that both the Chilean and Virginian species are represented in modern varieties."

Fletcher is strongly of the opinion that the Virginian strawberry played a much more important part in the evolution of the garden strawberry of North America than in that of this fruit in Europe. He brings forth such an array of proof that one is forced to believe that he has established the fact that the native species has entered more largely in the hybrid constitution of the American than of the European strawberry.

These quotations by no means cover all of the theories as to the origin of garden strawberries. Other writers have suggested a derivation from other species and other hybrid combinations. It seems now, however, that only the two theories set forth in the quotations are tenable, and of the two that that of hybridity is plainly established.

This text can offer little that is new on the origin of the strawberry. Previous workers seem to have brought forth every fact that would throw light on the evolution of this fruit and the botanical studies have been equally thorough. If any contribution can be made by the workers at this Station to the interesting question of how the strawberry has come to its present splendor of development it must be from the plant breeder's standpoint, and even here, since no definite studies have been undertaken, only an opinion based on observation can be offered.

For thirty years this Station has been growing seedlings of crossed and selfed varieties and species of strawberries. The total number of such seedlings now exceeds 30,000. As these words are being written about 5000 seedling strawberries from 15 crosses are in fruit and their plant and fruit characters are being described by the Station workers in pomology. Now the veriest tyro in strawberry study can detect the characters of *Fragaria chiloensis* and *F. virginiana* in these seedlings. The characters of one species predominate here; those of another there. A comparison has been made today of herbarium specimens, type plants of *F. chiloensis* and *F. virginiana* growing in the field, and the seedlings of these crosses. All of the characters of the two species, in widely varying numbers and in widely different degree, are found in the crosses and in individual plants.

There are also at the present moment in fruit on the Station grounds 134 of the varieties now most commonly cultivated in North America.

Every one of these kinds that has attained prominence in garden or field seems to show the characters of the two great American wild species. They seem to the workers at this Station to be unmistakably hybrids with no pure-breds.

Perhaps another statement of opinion may be submitted even if it has little value as definite proof. These cultivated varieties and seedlings fruiting on our grounds this season, and in the past, as plantations of other seasons have been kept in mind or can be brought to mind by looking over descriptions of other seasons, seem to show that *F. virginiana* greatly predominates over *F. chiloensis* in these North American strawberries,— a hypothesis that Fletcher has ably defended in his *The Strawberry in North America*.

We leave this discussion of *F. chiloensis*, the introduction of which in Europe seems to mark the beginning of the modern development of the strawberry, with the statement that: Evidence now seems to show that the modern garden strawberry of North America and Europe is a hybrid between *F. virginiana* and *F. chiloensis*.

THE STRAWBERRY IN NORTH AMERICA

The strawberry is preëminently an American fruit by reason of extensive cultivation and use as well as because of the nativity of the species which have given the world most of its cultivated varieties. In extent of acreage, quantity produced, value of crop, and number of cultivated varieties, the strawberry exceeds all of the other small fruits together in the United States and ranks high among tree fruits. This great strawberry industry is a development of the last hundred years,— almost a matter within the memory of men still living. In the history of the industry, the conspicuous landmarks are easily pointed out.

Early settlers found wild strawberries in luxurious abundance in almost every part of North America. It has ever been and still is the fruit of fruits for the pioneer. The plentifulness of wild berries makes cultivation unnecessary until agriculture has taken possession of a region. This seems not to have happened in any part of North America until just before the Revolution, although it may be surmised that thrifty housewives brought in superior plants from the fields to grow in the garden long before. Wild strawberries were freely sold in all American towns, however, as early as 1700. But the first landmark in American strawberry culture appears in 1771 when varieties for sale were offered in a trade catalog.

In his catalog of 1771, William Prince, Flushing Landing, New York, offers four kinds of strawberries for sale: Large Hautboys, the Chili, the Redwood, and the Wood strawberry. The first two we are already familiar with; the Redwood was probably a variety of *F. vesca*, and the fourth no doubt was the common wild strawberry *F. virginiana*. In 1791 Prince adds a fifth variety, the Hudson, which was to remain long in cultivation and may be named as the first American strawberry of importance. It was without doubt an improved form of *F. virginiana*. The name of the Hudson soon after seems to have been changed to Early Hudson, possibly to distinguish it from Hudson's Bay, a later kind, which with the Large Early Scarlet were being sold in several agricultural centers in 1800.

Perhaps the year 1800 is as accurate a date as any to put down as the beginning of the strawberry industry in America. There were at this date, as we have just seen, three very good varieties in commercial cultivation, cultural directions were appearing in the few agricultural papers of the times, and the *New England Farmer*, a cyclopedia of agriculture which appeared in 1823, and at once became the standard authority of the country on farming, had published a " system " of strawberry culture.

Important historical items now appear in rapid succession, few of which can be amplified in this brief review. The next one worthy of note is the introduction of the Pine strawberry, which was of importance because from it have come nearly all of the varieties now cultivated in America. This strawberry, one of the first varieties of *F. chiloensis* to be widely cultivated in Europe where it was common in England and France by the middle of the eighteenth century, had possibly been brought to America before the close of the century but no record of such an introduction appears until 1804 when it was mentioned in *The American Gardener*, the first American book wholly devoted to horticulture.

Horticulture as a profit-making industry at the beginning of the nineteenth century had its seat about the four large cities of the country, Boston, New York, Philadelphia, and Baltimore. One may glean many items from the news and horticultural papers, as well as from the books on fruits which were now appearing, to show that by 1825 commercial strawberry growing was an important industry about the cities named. At this time the leading varieties seem to have been Large Early Scarlet, Hudson Bay, Early Hudson, and Crimson Cone, the histories of which are set forth in the chapter on varieties.

Cultural methods were still primitive and mostly derived from Euro-

pean practices. The greatest advances in the industry, then as now, and as with any other fruit at any time, were in the greater numbers and in the betterment of varieties. By 1834, when the epoch-making Hovey originated, there were more than fifty well-recognized varieties under cultivation in the country, nearly all of which were offspring of *F. virginiana* but nearly all of which had originated in England or France. A few of the Pine varieties, as sorts derived from *F. chiloensis* were called, had also been introduced from abroad, but the cold winters and hot summers played havoc with the plants. Possibly the most noted exception was the Mulberry, a Pine much grown about Boston which deserves a place in strawberry history because it was one of the varieties Hovey used in making his crosses, an event to which we now come.

The origination of the Hovey was a landmark not only in strawberry culture but also in American pomology as it is accredited by all as the first variety of any fruit to come from an artificial cross in this country. Hovey,[1] whose portrait appears as the frontispiece, and to whom this volume is thereby dedicated, undertook the breeding of strawberries because, as one gleans from his writings, he recognized the urgent need of better varieties and saw the possibilities of improving wild strawberries. All of the varieties he knew were best marked by their imperfections,—plants were unproductive, and berries were small and poor in quality. The Pines from Europe approached perfection in fruit but were poor in

[1] Charles Mason Hovey was born in Cambridge, Massachusetts, October 26, 1810, and died in the city of his birth September 2, 1887. His work is noteworthy to small fruit growers in the United States, and *The Small Fruits of New York* is dedicated to him by publishing his portrait as the frontispiece, by reason of his work with strawberries. Hovey's greatest contribution to horticulture was the Hovey strawberry, originated by him and first fruited in 1836. But he is known to horticulture also because of his great collection of pears, apples, plums, grapes and ornamental plants on his grounds at Cambridge. He was throughout a long and busy life one of America's best authorities on varieties of fruits about which he wrote two sumptuous volumes, issued in parts from 1852 to 1856, in which he described the varieties of tree and small fruits cultivated in the United States. The volumes are handsomely printed and contain more than one hundred colored plates of the varieties which he described. He was best known in his lifetime as the editor of *The Magazine of Horticulture*, founded in 1835 and published until 1868, between which dates it had an uninterrupted period of prosperity, with a longer life than any other American horticultural magazine. The journal was founded as *The American Gardener's Magazine* by Hovey and his brother, Phineas Brown Hovey, but in 1837 the name was changed to *The Magazine of Horticulture*, with Charles M. Hovey, editor. Hovey was also a prominent and reliable nurseryman and seed dealer, and through his establishment many new plants came to America. He was an active member throughout his life of the Massachusetts Horticultural Society and was for a time its president. His writings are characterized by conservatism and accuracy, and he is now, as he was in his lifetime, one of America's great authorities on pomology and horticulture.

plant; American plants were hardy and vigorous but the fruits were small and insipid. Why not cross varieties of the two species?

Hovey first exhibited the strawberry which bears his name in 1838. The variety came from one of six crosses made in his garden in Boston in 1834, the pollen and pistillate parents being Keens Seedling, Mulberry, Melon and Methven Scarlet, of which the first two were Pines, the third probably a Pine, and the last certainly a native Virginiana. The parents were chosen by Hovey with the hope that he might get the large, richly flavored fruit of the Pines on the better plant of the native sort. The seedlings obtained from these crosses gave two varieties, Hovey and Boston Pine. Unfortunately the labels were lost in some division of his work so that Hovey was never certain what the parents of these varieties were.

Hovey was the sensation of its times in pomology. Its large, handsome, delectable berries delighted all lovers of fruit. The country was then enthusiastically supporting all institutions having to do with horticulture,—magazines, papers, societies, fairs, exhibitions, and nurseries,—and through these agencies the Hovey was soon distributed to strawberry growers in all parts of North America, and everywhere it stimulated interest in this fruit with the result that the strawberry became a major pomological product before the middle of the century.

The Hovey, however, soon showed several weaknesses, but its place was taken at once by newer and still better varieties which now began to appear in a continuous pageant which has come down, with ever-increasing numbers, to the present time. It was found that the Hovey succeeded only under the highest culture, made few plants, and that, since it was pistillate, pollen-bearing varieties must be planted with it to secure a sufficiently productive crop, a fact which brought to a fuller and eventually a final discussion of sex in strawberries, the vagaries of which had long been a troublesome problem to American strawberry growers.

It had been known in Europe since 1760 that there was a separation of sexes in some strawberries and application was made of the knowledge in France and England. Few of the Pine strawberries, however, as grown in England at least, needed cross-pollination to set fruit, and when the Hovey was introduced, most of the American varieties were staminate so that there was a difference of opinion in English-speaking countries as to whether separation of sex was a cause of unproductiveness. The pistillate Hovey started anew the study of sex in this fruit, brought forth new facts,

inspired experimental work in pollination, and after a decade of discussion from 1840 to 1850 in the press and in all American pomological societies, it was established that some varieties of strawberries were hermaphrodites and others unisexual, and that pistillate sorts must be cross-pollinated to bear fruit. With this knowledge, strawberry growing passed the troublesome obstacle of unproductiveness from self-sterility and the industry was given another forward impetus.

The Hovey was the first notable variety in the present race of large-fruited strawberries in America, and perhaps the brief account of its introduction and its influence on strawberry culture in the country may be put down as the last important landmark needful in this sketch of the strawberry in North America. It remains now to show the present magnitude of strawberry growing in the United States. Table 4 gives this information.

TABLE 4.—ACREAGE, YIELD AND VALUE OF STRAWBERRIES IN THE UNITED STATES IN 1919, BY DIVISIONS AND STATES

DIVISION AND STATE	Acreage	Yield (in quarts)	Value
United States	119,395	176,931,550	$36,004,245
Geographic Divisions:			
New England	3,353	6,319,419	$1,562,569
Middle Atlantic	13,909	24,065,552	5,225,366
East North Central	24,258	36,133,472	6,730,264
West North Central	18,147	26,048,603	5,441,459
South Atlantic	18,058	23,497,227	4,653,123
East South Central	16,038	19,673,040	3,730,408
West South Central	13,136	17,690,967	3,812,882
Mountain	1,623	2,158,654	493,290
Pacific	10,873	21,344,616	4,354,884
New England:			
Maine	555	893,740	$223,438
New Hampshire	366	489,774	117,545
Vermont	275	428,335	107,086
Massachusetts	1,431	3,151,371	787,844
Rhode Island	90	116,646	29,162
Connecticut	636	1,239,553	297,494
Middle Atlantic:			
New York	4,872	8,579,563	1,973,304
New Jersey	5,029	8,301,893	1,743,400
Pennsylvania	4,008	7,184,096	1,508,662
East North Central:			
Ohio	4,172	7,165,957	1,361,527
Indiana	3,401	4,277,646	855,538
Illinois	4,985	6,901,199	1,311,235
Michigan	8,048	12,585,543	2,265,400
Wisconsin	3,652	5,203,127	936,564

TABLE 4 — (*Concluded*).

DIVISION AND STATE	Acreage	Yield (in quarts)	Value
West North Central:			
Minnesota	2,768	4,111,969	$863,520
Iowa	4,472	6,606,592	1,387,381
Missouri	8,645	12,861,820	2,700,975
North Dakota	93	47,157	10,375
South Dakota	227	141,163	32,467
Nebraska	754	451,798	99,398
Kansas	1,188	1,828,104	347,343
South Atlantic:			
Delaware	3,503	4,056,028	730,085
Maryland	7,096	8,976,057	1,615,691
District of Columbia	10	16,882	3,376
Virginia	2,446	3,803,278	760,656
West Virginia	1,006	840,273	168,056
North Carolina	2,186	3,807,598	799,590
South Carolina	312	223,745	53,701
Georgia	665	505,693	116,313
Florida	834	1,267,673	405,655
East South Central:			
Kentucky	3,112	3,194,624	670,872
Tennessee	10,876	13,130,904	2,363,560
Alabama	1,359	2,024,051	404,812
Mississippi	691	1,323,461	291,164
West South Central:			
Arkansas	8,324	11,463,971	2,407,436
Louisiana	4,007	5,323,890	1,224,497
Oklahoma	302	311,630	68,560
Texas	503	591,476	112,389
Mountain:			
Montana	155	171,150	39,366
Idaho	469	494,818	103,915
Wyoming	39	27,061	7,848
Colorado	653	944,276	236,074
New Mexico	28	14,363	3,734
Arizona	20	17,058	4,267
Utah	254	484,792	96,957
Nevada	5	5,136	1,129
Pacific:			
Washington	3,087	6,377,368	1,403,021
Oregon	2,812	4,159,200	790,251
California	4,974	10,808,048	2,161,612

CHAPTER XV

THE SYSTEMATIC BOTANY OF THE STRAWBERRY

Strawberries form part of the Rose family, Rosaceae; they are closely allied to Potentilla, from which they chiefly differ in the receptacle of the flower becoming fleshy and edible. They are low, perennial herbs, and propagate easily by runners and seeds. They chiefly inhabit the temperate regions of the Northern Hemisphere, and on the American continent follow the long mountain chains from Alaska to southern Chile. In the North they are common from the plains to the mountains on dry hillsides, among bushes and in woods, rarely in meadows. In warmer countries they are restricted to the mountain regions. The number of species is still disputed. While the number of specific names given by various botanists to wild specimens of Fragaria surpasses 150, others like Bentham & Hooker, and Focke, only recognize about 8 species. Probably there are more than 8 species, but just how many can be distinguished without dispute cannot be said.

The difficulty is that strawberries are much alike and possess scarcely any distinguishing specific characters. Characters on which most specific descriptions rely, as size of leaves, petioles, peduncles, hairiness, and the shape and dentation of the leaflets, are exceedingly variable. Most species have a wide geographical range with few or many natural varieties. Besides this variation spontaneous hybrids are known and expected to exist wherever two or more species come in contact. It is therefore not always easy to decide to which species a given wild strawberry belongs or where the limits of a species should be drawn.

In the North American Flora 27 species are described as inhabiting North America inclusive of Mexico and Jamaica. However, several of these have little claim as species and are scarcely more than varieties, and one is a garden hybrid. All of the North American strawberries have edible fruits and some may help to meet local climatic requirements when used in breeding work. The Old World species have been cultivated for a long time. At present they have only historical interest as they are totally eclipsed by the large-fruited varieties resulting from 2 species of the New World, one from Chile (*F. chiloensis*) and one from the United States and Canada (*F. virginiana*).

Sex is of great importance to the grower. Some flowers are hermaphrodite, that is, they have both fertile stamens and pistils; in other cases one

sex predominates while the other is more or less abortive on the same or on different individuals, so that one plant carries either only male or female flowers. Purely female flowers are without stamens but with well-developed pistils, while in male flowers the stamens are perfect and the pistils imperfect. Male flowers are usually larger. It is not always easy to say whether in a stamen-bearing flower the pistils are imperfect and sterile or not. Female flowers, of course, must be pollinated with pollen from male flowers, if they are to produce fruits. If the male individuals are removed because they produce no fruit, as was not infrequently done in the early days of strawberry culture, the rest must cease to bear fruits, and complaints as to the unproductiveness of strawberries follow.

The French botanist, Antoine Nicolas Duchesne, investigated this sterility and discovered the differences in the sex of the strawberry flowers in 1766. He observed that among 300 plants grown from seeds none had perfectly hermaphrodite flowers. Similar complaints about sterility were common in the beginning of the cultivation of the Chilean strawberry.

Fragaria. Linnaeus *Sp. Pl.* 494. 1753.

Acaulescent, more or less hairy, perennial herbs with basal leaves and long filiform runners from the axils, which root and form new plants. Petioles mostly long and channeled above; stipules adnate at the base of the petiole, large, mostly scarious and brown, persistent and covering the rootstock. Leaves 3-foliolate, or sometimes unequally imparipinnate, i.e., with a pair of much smaller lateral leaflets below the normal ones; leaflets sharply dentate, but entire at the more or less wedge-shaped base, the lateral ones oblique, the inner half usually smaller. Scape mostly about as long as the petioles, cymosely branched, the lowest bracts with stipules and a more or less developed blade; pedicels slender, erect when in flower, curved when in fruit.

Flowers polygamo-dioecious, rarely hermaphrodite, the male flowers larger and showier, all 5-parted, central flowers the first to open, often 6- to 8-parted and larger than the later ones. Calyx-lobes from a flat hypanthium, augmented by as many shorter and mostly narrower outer calyx-lobes or bractlets. Stamens about 20 or less, or abortive; filaments mostly shorter than the receptacle, anthers oblong. Receptacle roundish or conical, bearing numerous pistils with lateral styles, at maturity the receptacle becoming enlarged and juicy, popularly known as "Strawberry."

Key to the Species Described

A. Leaflets rather thick, almost leathery, with the venation deeply impressed above and prominently reticulate beneath, shining green above and tomentose or silky hairy beneath; teeth comparatively short and broad. Pedicels of the fruit recurved

B. Fruits ovoid-conical; calyx-lobes loosely appressed..... *F. chiloensis*

BB. Fruits roundish, calyx-lobes spreading..... *F. californica*

STRAWBERRY BLOSSOMS

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AA. Leaflets thinner, venation not as strongly impressed above and raised beneath
B. Achenes (seeds) sunk in pits on the ripe fruit
C. Leaflets with a few broad teeth only, slightly tomentose and silk hairy underneath *F. cuneifolia*
CC. Leaflets with more numerous teeth, about 7–10 on each side
D. Leaflets obovate-cuneate
E. Leaflets intensely glaucous green, more or less falted along the midrib, teeth large, more or less lanceolate-deltoid and falcate, lateral leaflets very oblique; inflorescence cymose..... *F. virginiana*
EE. Leaflets dull pale green, flat, lateral leaflets not very oblique..*F. platypetala*
DD. Leaflets ovate, deep green; flowers yellowish or greenish yellow at first *F. viridis*
BB. Achenes not in pits, placed superficially upon the fleshy receptacle. Leaflets rather thin, bright green, terminal tooth prominent
C. Leaves deep, almost metallic green; flowers yellowish or greenish yellow at first *F. viridis*
CC. Leaves not so; flowers white from the opening
D. Scape racemosely and usually unilaterally branched; pedicels unequally long; the upper ones with appressed hairs..... *F. vesca*
DD. Scape mostly exceeding the pedicels, subcymosely branched, pedicels almost equally long, erect, with spreading hairs..... *F. moschata*

Fragaria vesca. Linnaeus *Sp. Pl.* 494. 1753. Ascherson & Graebener *Syn. Mitteleurop. Fl.* **6**:649. 1904. Rydberg *N. Am. Fl.* **22**:359. 1908. Gray *New Man.* 7th Ed. 479. 1911.

F. vesca silvestris. Linnaeus *Sp. Pl.* l.c.

F. sylvestris. Duchesne *Hist. Nat. Frais.* 61. 1766.

F. vulgaris. Ehrhart *Beitr.* **7**:21. 1792.

Wood Strawberry, Walderdbeere, Fraisier des bois.— Rootstock and runners rather slender. Stipules lanceolate, pointed, brown, hirsute on the back. Petioles slender, 4–14 cm long, narrowly grooved above, with soft, spreading or variously bent, white hairs. Leaflets sessile, the terminal one shortly stalked, 3–6 cm long and 2–5 cm wide, rather thin, bright green and with scattered soft hairs above, paler green and densely silky hairy underneath, especially on the veins, with straight, sharp, ovoid-deltoid teeth, the terminal one generally much prominent; the terminal leaflet larger, rhomboid-ovate or obovate, shortly pointed, wedge-shaped and entire at the lower third, with 5–10 teeth on each side; the lateral leaflets oblique, unequally broadly wedge-shaped at the entire base, with 4–10 well-formed teeth on the inner and 5–10 on the outer side. Scape generally overtopping the leaves, with soft, spreading or appressed hairs, racemosely and usually unilaterally branched; pedicels unequal, the lowest longer than the other with spreading hairs, the upper one with appressed or erect white hairs, all elegantly curved when in fruit; bracts ovate or subulate; the lower ones often foliaceous. Flowers erect, rather small, rarely 2 cm across, saucer-shaped, pure white from the opening, hermaphrodite. Outer calyx-lobes lanceolate, inner ones as long, broader, all pointed and mucronate, reflexed on the fruit. Petals concave, longer than the calyx. Stamens about as long as the receptacle. Fruit scarlet, roundish or ovoid-conical, detaching easily, achenes set superficially, sweet and very aromatic.

Eastern North America, northern Asia, and Europe; north as far as Lapland and Iceland. It is commonly found, probably subspontaneous, in South America, Ecuador, in Peru, and in eastern Brazil.

There are several varieties and forms, some of which have been described as minor species by Jordan and Fourreau, which do not deserve to be mentioned. The most common European form has been distinguished as *F. vesca* var. *silvestris* Linn. or var. *typica*, Ascherson & Graebener l.c. A small form of this occurring on dry hills is *F. minor*, Duchesne in Lam. *Encycl.* **2**:531. 1786.

A form with erose petals is var. *crenata*, Schur *En. Pl. Transs.* 186. 1866. Two monstrous forms were named by Duchesne in Lam. *Encycl.* **2**:532, 533. 1786, *F. multiplex* with small pale fruits and *F. botryformis* with numerous small flowers rising from one flower.

A form with pale pink petals has been described as var. *roseiflora*, Bouley *Bul. Soc. Bot. Fr.* **18**:92. 1871; a form with bright rose-colored petals is var. *rosea*, Rostrup in Lange *Haandb. Danske Fl.* 4th Ed. 810. 1888.

A form with white or pale fruits is known as var. *alba* Ehrhart, Rydberg *Mem. Dept. Bot. Columbia Univ.* **2**:174. 1898; *F. vulgaris alba*, Ehrhart *Beitr.* **7**:22. 1792; *F. vesca albicarpa*, Britton *Bul. Torrey Bot. Club* **6**:323. 1879. It occurs with the type and is not rare in North America.

The rare form with elongated red, or dark red, or whitish fruits is often cultivated and was named *F. vesca hortensis*, Ser. in De Candolle *Prodr.* **2**:569. 1825; *F. hortensis*, Duchesne *Hist. Nat. Frais.* 113. 1766.

More marked varieties are as follows:

Var. **monophylla** Duchesne. Ascherson & Graebener *Syn. Mitteleurop. Fl.* **6**:650. 1904.

F. monophylla. Duchesne *Hist. Nat. Frais.* 124. 1766.

F. abnormis. Tratt. *Ros. Monogr.* **3**:166. 1824.

A monstrous form with one cordate-ovate or sometimes indistinctly 3-lobed leaflet; it was first raised by Duchesne in 1761 as a chance seedling from *F. vesca*.

It comes true from seed and is easily propagated from runners. Its leaves are those of the juvenile state.

Var. **efflagellis** Duchesne. Ser. in De Candolle *Prodr.* **2**:569. 1825.

F. efflagellis. Duchesne *Hist. Nat. Frais.* 119. 1766.

Rootstock much branched, caespitose, without runners, petioles erect, longer. Flowers more numerous; fruits mostly elongate.

First found in France near Laval by M. de Lamey de Fremeu in 1748. It was much planted as a border plant, but was replaced later by the var. *semperflorens efflagellis* Ascherson & Graebener.

Var. **semperflorens** Duchesne. Ser. in De Candolle *Prodr.* **2**:569. 1825.

F. semperflorens. Duchesne *Hist. Nat. Frais.* 49. 1766.

F. alpina. Steudel *Nomencl.* **1**:344. 1841.

Alpine Strawberry.— Robust, caespitose, up to 30 cm high, flowering continuously from May to fall; peduncles mostly shorter than the leaves, forked, with a foliaceous bract, many flowered, the lower pedicels bearing fruit when the upper ones are still flowering. Peduncles usually bent down by the weight of the fruit.

Europe; chiefly in southeastern Europe and along the southern slope of the Alps. Once much cultivated for its delicious fruit under the names Monatserdbeere, Fraisier de quatre saisons, or Fraisier des Alpes. (See Mme. E. de Vilmorin in Decaisne *Jard. Fruit.*, with plate.) There is also a white-fruited variety and a red and white-fruited form without runners, forma *efflagellis* Ascherson & Graebener; all originated in cultivation in France between 1811 and 1818, and are still cultivated in Europe.

There exist two strange forms of this variety. One has been named forma *Hauchecornei*, Ascherson & Graebener *Syn. Mitteleurop. Fl.* **6**:652. 1904. Petals persistent, turning red on the ripe fruit. Originated in cultivation in Berlin. The other is forma *muricata* Duchesne, Ascherson & Graebener l.c.; *F. muricata*, Duchesne in Lamarck *Encycl.* **2**:533. 1786. Calyx-lobes large, foliaceous, petals missing; styles very long, enlarged and persistently green on the red fruit. In cultivation since about 1620, found at that time by Tradescant at Plymouth.

The following is a distinct geographical variety.

Var. **americana.** Porter *Bul. Torrey Bot. Club.* **17**:15. 1890.

F. americana. Britton *Bul. Torrey Bot. Club* **19**:222. 1892.

Plants more slender and leaves thinner. Petioles almost smooth; leaflets soon glabrous, with sharp and large teeth. Scape and pedicels with appressed hairs. Fruit narrowly conical or sub-cylindric-ovoid with very superficially set achenes.

Eastern North America; from Newfoundland to Manitoba, New Mexico and Virginia, mostly in shady woods and glens.

The common European strawberry has been much in cultivation. It was known as Wood Strawbery, Walderbeere and Fraisier des Bois. The young plants were generally gathered in the woods, as they were found to produce more aromatic fruits than those from runners from garden plants. Except for the cultivated varieties mentioned above there seem to have

been no cultivated forms of the common wood strawberry besides the little varied *F. petite hâtive*, which ripened five to six days earlier. Most of these plants are out of common cultivation and all are replaced by the modern large-fruited varieties.

Hybrids between *F. vesca* and *F. chiloensis* have been observed repeatedly in gardens, in Europe as well as elsewhere. Such hybrids were also collected in Ecuador at Ambato by Wilson Popenoe in January, 1921. These hybrids are either more like *F. vesca* or more like *F. chiloensis*, but in all their characters they clearly show their hybrid nature. Hybrids of *F. vesca* with *F. virginiana* are also reported to occur occasionally in European gardens, and probably also such with the *F. chiloensis* x *F. virginiana*.

Fragaria moschata. Duchesne *Hist. Nat. Frais.* 145. 1766; Ascherson & Graebener *Syn. Mitteleurop. Fl.* **6**:653. 1904.

F. vesca sativa. Linnaeus *Sp. Pl.* 495. 1753.

F. vesca pratensis. Linnaeus *Sp. Pl.* 2d Ed. 709. 1762.

F. pratensis. Duchesne in Lamarck *Encycl.* **2**:536. 1786.

F. elatior. Ehrhart *Beitr.* **7**:23. 1792.

F. magna. Thuill. *Fl. Paris.* 2d Ed. 254. 1799.

F. reversa. Kit. *Linnaea* 32:**595**. 1863.

Larger than *F. vesca*, 15–30 cm high. Rhizome stout, stipules brown, keeled, rather short. Petioles erect, narrowly channeled, up to 20 cm long and rather slender, with strong spreading hairs. Leaflets about equally stalked, almost uniform in shape, rhomboid-ovate, somewhat pointed, the terminal one with a broadly cuneate base, the lateral ones with an oblique roundish cuneate base; soft, plicate, bright green with scattered hairs, paler and hairier underneath, 3–7 cm long and 2–5 cm wide; teeth coarse, ovoid-deltoid, 9–14 on each side, the terminal tooth often prominent, though small, lateral leaflets with a few more teeth on the outer margins. Scape mostly longer than the petioles, with spreading hairs, usually with a foliaceous bract at the lowest forking with 5–12 flowers; pedicels with spreading hairs, erect, simple or forked, almost of equal length forming a rather rich subcymose inflorescence. Flowers dioecious, slightly fragrant, the male ones larger with slender pedicels, the female ones smaller. Outer calyx-lobes narrowly lanceolate, contracted at the base, long acuminate; inner calyx-lobes longer, deltoid-lanceolate, long acuminate, variable in length, sometimes exceeding the petals. Petals roundish obovate, white or yellowish. Stamens about 20 in the male plants, longer than the receptacle, in the female plants fewer and as long or shorter than the receptacle. Fruit with spreading or reflexed calyx-lobes, roundish or roundish ovoid, often with a short neck and rather large, sweet and agreeable with a slight musky flavor.

Central Europe to England and south Sweden, Finland and probably Russia; in shady woods, on hills.

This species is easily distinguished from *F. vesca* by size of plant and the almost umbellate flowers. There is a forma *rubriflora*, Heimerl *Abhandl.*

Z. B. G. Wien **31**:176. 1881, with crimson or striped petals. A forma *calycina* Loisel *Fl. gall.* 299. 1868, has large foliaceous calyx-lobes.

Hybrid forms are recorded with *F. vesca*. They are taller than the parents, and have the pedicels with variously mixed appressed, erect, and spreading hairs. The calyx-lobes on the ripe fruit are spreading. Such hybrids have been named *F. intermedia*, Bach *Flora* **24**:719. 1841 and *F. drymophila*, Jord. & Fourr. *Icon.* Pl. 28, fig. 48. 1870. Hybrids with *F. viridis* are also recorded. They are usually found among the parents, but are easily overlooked. Here belong *F. neglecta*, Lindem. *Bul. Soc. Imp. Mosc.* **38**:Pt. II, 218. 1865 and *F. sericea*, Christ *Nym. Consp. Suppl.* 109. 1890; not Douglas. Hybrids with *F. chiloensis* are said to occur occasionally in European gardens.

On account of its delectable, aromatic fruits it has been long under cultivation as the Hautbois Strawberry, Moschuserdbeere, Zimmeterdbeere, or Capron, but these have given way to larger fruited kinds. Near Hamburg it is still cultivated as Vierländer Erdbeere or Lütte Dütsche. The objection to this strawberry has always been that it is not productive on account of the male plants, which were generally eradicated by the cultivators. Duchesne was the first to show the dioecious flowers of this species and the necessity to preserve some male plants in cultivation.

Fragaria viridis. Duchesne *Hist. Nat. Frais.* 135. 1766; Ascherson & Graebener *Syn. Mitteleurop. Fl.* **6**:654. 1904.

F. breslingea. Duchesne ex Ser. in De Candolle *Prodr.* **2**:570. 1825.

F. collina. Ehrhart *Beitr.* **7**:26. 1792.

F. campestris. Steven *Bul. Soc. Nat. Mosc.* **29**:Pt. II, 176. 1856.

F. cerinoalba, F. suecica, etc. Jord. & Fourr. *Brev. Pl. Nov.* **Pt. 1**:13–15. 1870.

Rhizome little branched; stipules narrow; petioles with spreading hairs. Leaflets ovate, obtuse, deep green, almost metallic green, glaucescent underneath, on both sides, especially beneath densely covered with appressed silky hairs; lateral leaflets sessile, terminal one shortly stalked; lateral teeth curved, converging over the smaller terminal one. Scape slender, but stiff and erect, with spreading hairs below and with appressed or erect hairs above; inflorescence about 4-flowered, more or less hidden among the foliage, with short internodes and prolonged pedicels, subumbellate, with appressed silky hairs. Flowers incompletely dioecious, yellowish or greenish yellow when opening, finally white; calyx-lobes equally long, outer ones spreading. Petals rather flat, undulate at the margins. Stamens in fertile flowers as long as the receptacle, twice as long in the sterile ones. Fruit globular, with a seedless neck, rather large, with the achenes sunk in pits, red but white under the adpressed calyx-lobes, firmly attached and incompletely detaching, rather hard, but aromatic, about as large as that of *F. vesca*.

Central Europe and northern Asia; not as common as the others and preferably on calcareous soil.

This species is a most variable plant. The following varieties and forms are recorded: *F. viridis* var. *alpina*, Ascherson & Graebener *Syn. Mitteleurop. Fl.* **6**:655. 1904. A very dwarf, densely hairy plant; occurs on dry rocks in Transsylvania. Ascherson & Graebener further mention a forma *flagellifera* with long runners; a forma *subpinnata* with two smaller, adventive leaflets; a forma *magnusiana* with five leaflets; and a forma *subpinnatisecta*, with deeply toothed or cut leaves.

Probably hybrids between *F. viridis* and *F. vesca* are described as *F. majaufea*, Duchesne in Lamarck *Encycl.* **2**:533. 1786; *F. Hagenbachiana*, Lange ex Koch *Flora* **25**:532. 1842. It is a robust plant with stalked leaflets, the petiolule of the terminal leaflet often more than 1 cm. long. To this form may belong also *F. bifera*, Duchesne in Lamarck *Encycl.* **2**:533. 1786, said to flower repeatedly, and *F. dubia*, Duchesne l.c., with poor, often abortive fruits. *F. umbelliformis*, Schultz ex Nyman *Conspect.* 222. 1878, is probably a similar hybrid form. The influence of *F. viridis* is recognizable from the silky hairs on the under side of the leaves.

F. viridis is now hardly anywhere in cultivation, but it was grown to some extent in Europe at the end of the eighteenth century and later. It was known in France under the names Capiton, Breslinge, Craquelin, Fraisier étoilé, Breslinge de Bourgogne, Fraisier marteau, Fraisier vert, and Breslinge d'Angleterre. It is described and figured by Duhamel, *Trait. Arb. Fr.* **1**:252, Pl. IX. 1768, under the name *F. gracilis flore et fructibus subviridibus*. The designation Breslinge is derived from the South German word Prestling (Brestling), which is applied to all cultivated strawberries.

Fragaria chiloensis Linn. Duchesne *Hist. Nat. Frais.* 165. 1766; Ehrhart *Beitr.* **7**:1792; Decaisne *Jard. Fruit.* **9**:53, Pl. 1862–75; Ascherson & Graebener *Syn. Mitteleurop. Fl.* **6**:657. 1904; Rydberg *N. Am. Fl.* **22**:357. 1908; Bailey *Stand. Cyc. Hort.* **3**:1272. 1915; Popenoe *Jour. Hered.* **12**:457, fig. 1921.

Chilean Strawberry.— Rootstock stout; stipules densely felty, brown, scarious. Petioles stout, 5–20 cm long, very densely hirsute with patent gray or whitish hairs. Leaflets about equal, 2–5 cm long, somewhat falted along the midrib, more or less stalked, especially the terminal one, thick, leathery, smooth and shining dark green above with deeply impressed veins, underneath strongly reticulate with prominent nerves and almost white from densely adpressed, silky hairs; crenate dentate, teeth short roundish, with revolute hairy margins, terminal tooth minute; lateral leaflets obliquely roundish with an oblique, entire, broadly cuneate base, especially on the inner side, with about 7–9 teeth on each side; terminal leaflet stalked, twice as long, roundish or obovate roundish, with

an entire, broadly cuneate base, teeth about 7 on each side. Scape shorter than the leaves, with many spreading hairs, like the petioles, rather few flowered; bracts very hairy, densely covered with almost adpressed silky hairs. Flowers dioecious or polygamous, rarely hermaphrodite, the male flowers larger. Calyx very densely silky hairy, lobes narrowed above the base, the outer ones shorter. Petals 6–8, round, with undulate margins, suddenly contracted into a claw, longer than the calyx; receptacle hairy; stamens in the male flowers many. Fruit dull red, ovoid conical, large, over 3 cm long, hairy between the slightly sunken achenes, borne on a recurved or ~-formed pedicel, calyx-lobes loosely adpressed.

Chile, *Peru*, *Ecuador*, and there largely cultivated everywhere under the name Frutilla. An interesting account of its cultivation in South America is given by Wilson Popenoe, l.c. It is said to grow in California. The Chilean strawberry was first introduced into France in 1712 by a French officer named Frezier.

A form with two smaller leaflets below the normal leaflets was named var. *pentaphylla*, Schur *Enum. Plant. Transs.* 187. 1866, but such leaves are frequently found.

The first introduced plants of *F. chiloensis* were pistillate-flowering and consequently unproductive for want of pollination. Pollination, however, took place where the plants were grown in the vicinity of *F. virginiana*. From seeds resulting from such crosses were produced towards the middle of the eighteenth century the varieties known as Pine or Ananas, Bath, and others. They were described under the following names: *F. ananassa*, Duchesne *Hist. Nat. Frais.* 190. 1766; *F. vesca ananassa*, Aiton *Hort. Kew.* **2**:212. 1789; *F. grandiflora*, Ehrhart *Beitr.* **7**:25. 1792, and *F. calycina*, Mill. *Icon. Pl.* 288. 1794. The variety Bath was named *F. calyculata* by Duchesne in Lamarck *Encyc.* **2**:538. 1786; a similar variety, Caroline, was named *F. carolinensis*, and another, *F. tincta*, by Duchesne in Lamarck *Encyc.* **2**:539. 1786.

Evidently different strains and varieties of *F. virginiana* must have partaken in these crosses, and from these came all of our modern large-fruited strawberries. Some of these varieties lean to one parent, some to the other, but most of them are intermediate forms. The stronger influence of *F. chiloensis* is usually visible in the more leathery shining green flat leaflets with a more reticulate venation, roundish teeth, and greater hairiness on petioles and peduncles. Examples are the varieties Alden, Arcade, Aurora, Bliss, Howard, Parker, Schauber, and Wyona.

Those kinds which lean more towards *F. virginiana* have thinner, more glaucous leaflets, which are more or less felted along the midrib,

with coarser, more falcate teeth and less visible reticulate venation. Varieties of this kind are Abington, Beder Wood, Champion, Chesapeake, Delicious, Dunlap, Easypicker, Eaton, Haverland, and Klondike.

As a rule, however, the characters of *F. virginiana* seem to be more dominant; this is also evident in the long petioles and scapes and the more cymose, many-flowered inflorescences, the brighter color, and the sunken seeds of the fruits.

L. H. Bailey puts all of these hybrids under *F. chiloensis ananassa* Hort., in his *Stand. Cyc. Hort.* **3**:1272. 1915. Duchesne created for them and for *F. virginiana* the group name Quoimio which, however, never came into general use. A form with variegated leaves has been recorded and also one with persistent petals. Hybrids with *F. vesca* and with *F. moschata* occur and have been mentioned under these species.

Fragaria californica. Cham. & Schlecht. *Linnaea* **2**:20. 1827; Rydberg *N. Am. Fl.* **22**:358. 1908.

F. sericea. Douglas in Hooker *Fl. Bor. Am.* **1**:185. 1832.

F. lucida. E. de Vilmorin ex Gay *Ann. Sci. Nat.* 4th Ser. **8**:201. 1857; E. de Vilmorin in Decaisne *Jard. Fruit.* 51, Pl. 1862–75.

F. chiloensis auct.

Rootstock stout, stipules large and broad, ovoid, pointed, brown, the lower ones more hairy; runners stout and long, with adpressed hairs. Petioles 3–9 cm long, stout, not channeled above, densely beset with soft, spreading, white hairs. Leaflets rather small, somewhat thick or sometimes nearly coriaceous, glabrous and dark shining green above with deeply impressed venation, whitish tomentose and with long silky hairs, especially along the elevated veins underneath, 2–5 cm long and 1.5–4 cm wide, obtuse or truncate with the terminal tooth very small; the lateral leaflets on very short stalks, very obliquely cuneate at the base, rhomboid-ovate, the outer side larger almost auriculate with 5–8 teeth, the inner side with about 2–3 teeth or more; the terminal leaflet longer stalked, obovate-cuneate or almost obcordate, crenate only at the top with 2–5 teeth on each side; the teeth broadly roundish, abruptly pointed, overtopped by a brush of silky hairs. Scapes mostly shorter than the petioles, with spreading hairs; bracts sometimes foliaceous; pedicels 2–5 cm long, with spreading or adpressed or reflexed hairs. Flowers several, polygamo-dioecious, male flowers larger, over 3 cm across, the female ones much smaller, soon losing their petals. Calyx with adpressed white silky hairs, outer calyx-lobes oblanceolate, with a midrib and reticulate veins, inner ones broader and longer, ovate-deltoid, acute. Petals roundish obovate, with a short claw. Receptacle hairy. Fruit small, roundish, softly hairy, dull red, sweet, achenes brown in pits; calyx spreading, peduncle recurved or ∼-shaped, bearing the fruit upright.

Pacific Coast of North America; from Alaska, British Columbia, Washington, Oregon to middle California, mostly on sand dunes near the coast. " Dense and extensive colonies common near the coast. An effective

sandbinder and consequently a hummock former. The large globose fruit with achenes in pits begin to ripen in May." (C. F. Baker.)

This small and pretty little strawberry is related to *F. chiloensis*, but differs sufficiently from that species. It has been largely used in hybridizing with the common large-fruited garden strawberries by Albert F. Etter, in Ettersburg, California. His varieties Ettersburg No. 432 and No. 433 show this derivation clearly. At the Alaska Agricultural Experiment Station, Sitka, C. C. Georgeson also raised a number of varieties suitable to the Alaskan climate from this species crossed with an unnamed garden variety.

Fragaria cuneifolia. Nuttall ex Rydberg *N. Am. Fl.* **22**:360. 1908.

Rootstock short, not very thick; stipules brown, lanceolate. Runners long and slender with spreading hairs. Petioles slender, broadly channeled, with long, silky, spreading or reflexed hairs. Leaflets rather firm, almost coriaceous, glaucous green and glabrous above; pale green and slightly tomentose and with long, silky hairs underneath, cuneate-obovate, obtuse or truncate, 1.5–4 cm long, with a few teeth only near the apex, the middle tooth smaller; terminal leaflet stalked, the lateral ones shorter stalked or subsessile, not much oblique. Scape slender, shorter than the leaves, with spreading or reflexed long hairs; pedicels few, slender, with loosely adpressed hairs. Flowers dioecious, 1.5–2 cm wide; outer and inner calyx-lobes linear-lanceolate; petals obovate-cuneate. Fruit subglobose, pink or light red, about 1 cm across, very hairy, with the achenes in pits.

British Columbia to Oregon and Idaho. This species has been likewise employed in breeding work by Etter in California.

Fragaria platypetala. Rydberg *Mem. Dept. Bot. Columbia Univ.* **2**:177. 1898; Rydberg *N. Am. Fl.* **22**:361. 1908.

Stipules rather small; petioles 2–20 cm long, narrowly channeled, with white spreading hairs. Leaflets soft, glabrous and dull pale green or somewhat shining when young, paler beneath and silky hairy along the veins and the margins, stalked, obovate-cuneate obtuse on each side with about 8–10 sharp ovate curved teeth, the terminal tooth minute; the lateral leaflets not very oblique, the terminal one longer stalked. Scape almost as long as the petioles or shorter, with spreading silky hairs, rather many flowered. Flowers 1.5–2.5 cm across, calyx-lobes lanceolate; petals orbicular. Fruit small, 1–1.5 cm across, achenes sunk in shallow pits.

From Alaska to California, Utah, Wyoming, and Montana. This species has been used for hybridizing at the Alaska Agricultural Experiment Station.

Fragaria virginiana. Duchesne *Hist. Nat. Frais.* 204. 1766; Decaisne *Jard. Fruit.* **9**:43, Pl. 1870; Britton & Brown *Ill. Fl.* fig. 1908. 1897; Ascherson & Graebener *Syn. Mitteleurop. Fl.* **6**:658. 1904; Rydberg *N. Am. Fl.* **22**:362. 1908; Gray *New Man.* 7th Ed. 479. 1911; Bailey *Stand. Cyc. Hort.* **3**:1272. 1915.

F. glabra fructo coccineo min. Duhamel *Trait. Arb. Fr.* **1**:241, Pl. V. 1768.

Scarlet or Virginia Strawberry.— Rootstock moderately stout, short; stipules long pointed, more or less tinged with bright crimson, along the keel and margin with stiff long white hairs. Runners long and rather stout with appressed hairs. Petioles rather stout and long, reaching up to 25–30 cm, broadly channeled above, more or less hairy, especially near the top, hairs spreading or adpressed, scattered, the strong old leaf-stalks densely beset with spreading hairs. Leaflets from almost sessile to distinctly stalked, rather firm in texture, more or less falted along the midrib, usually intensely glaucous green, paler underneath, silky hairy when young, almost glabrous when old or with scattered adpressed hairs on both sides, chiefly underneath along the veins, and along the margins, often overtopping the pointed lanceolate or ovoid-deltoid, frequently curved teeth, the terminal tooth smaller; terminal leaflet obovate-cuneate, obtuse, entire in the lower third or half, 3–10 cm long and 3–6 cm wide, with 7–10 well-formed teeth on each side; lateral leaflets obliquely obovate or rhomboid-ovate, obtuse, the inner side narrower and with a longer entire base, the outer side broader and with 6–12 larger teeth. Scape mostly as long as the petioles, but sometimes shorter, with loosely adpressed hairs; inflorescence cymosely umbellate, 5–13 flowered or more, with lanceolate-acute or foliaceous or even 3-foliolate bracts; pedicels short and erect at first, scarcely exceeding the bracts, but soon elongating and curving afterwards, covered with long adpressed gray, not silky, hairs. Flowers polygamo-dioecious, 2–2.5 cm across, the pistillate flowers usually smaller. Calyx with long adpressed or reflexed gray hairs, outer lobes narrowly lanceolate, inner calyx-lobes broader, deltoid-lanceolate. Petals roundish obovate, entire, contracted into a claw, milk white, usually exceeding the calyx-lobes. Stamens in staminate flowers numerous, longer than the receptacle, in pistillate flowers more or less obsolete. Receptacle hairy, styles rather long. Fruit 1–1.5 cm across, bright scarlet, subglobose, usually with a smooth neck underneath the spreading calyx, with the achenes set in deep pits, sweet and juicy.

Eastern North America, common on banks and in woods.

A somewhat variable plant; the following varieties have been segregated:

Var. **canadensis.** Michaux.

F. canadensis. Michaux *Fl. Bor. Am.* **1**:299. 1803; Rydberg *N. Am. Fl.* **22**:362. 1908. Pubescence sparing, on the scapes subappressed; fruit oblong-conic, over 1 cm long and 6–7 mm broad.

Var. **grayana** Vilmorin. Rydberg *Mem. Dept. Bot. Columbia Univ.* **2**:180. 1898.

F. Grayana. E. de Vilmorin ex Gay *Ann. Sci. Nat.* 4th Ser. **8**:202. 1857; Rydberg *N. Am. Fl.* **22**:362. 1908.

F. virginiana illinoensis. Gray *Man.* 5th Ed. 155. 1867.

F. illinoensis. Prince ex Hitchc. *Trans. Acad. Sci. St. Louis* **5**:493. 1892.

Coarser and larger form; petioles, peduncles and pedicels tomentose from spreading hairs.

Western New York to Minnesota, on rich soil.

Var. **glauca.** Watson *Bot. King's Expl.* 85. 1871.

F. glauca. Rydberg *Mem. Dept. Bot. Columbia Univ.* **2**:183. 1898; Rydberg *N. Am. Fl.* **22**:364. 1908.

Smaller plant, bracts less hairy; petioles 5–15 cm long, sparingly loosely hairy; leaflets broadly obovate, the lateral ones very oblique, glaucous, sparingly hairy on both sides, glabrate at length, 3–5 cm long. Scape usually shorter than the leaves, many flowered, almost glabrous; pedicels with adpressed hairs.

A western form, from British Columbia to South Dakota and New Mexico.

F. pauciflora, Rydberg *Mem. Dept. Bot. Columbia Univ.* l.c., is a similar, few-flowered form.

F. virginiana is always easily known by the glaucous, felted leaflets, with large coarse, curved teeth, the subumbelliform inflorescence and the crimson-colored or scarlet fruits. It was introduced long ago into European gardens. According to Duchesne, it was common in cultivation in England, Holland, and France, toward the end of the seventeenth century. It is well figured by Batty Langley, *Pomona* 120, Pl. 55, figs. 1 & 4. 1727, and by Duhamel, *Traité des Arbres Fruitiers* 1:241, Pl. V. 1768. It was known in France as the Fraisier écarlate, Petit écarlate, and Fraisier de Holland. *F. virginiana* is occasionally found subspontaneous in Germany. Hybrids with *F. vesca* and *F. moschata* have been repeatedly observed in European gardens and the hybrids with *F. chiloensis* have been discussed under that species.

CHAPTER XVI

VARIETIES OF STRAWBERRIES

A-1. **1.** Armstrong *Cat.* 21. 1918.

Origin unknown. Has been grown some in southern California but is now superseded by better sorts. Perfect. Plants at this Station very numerous, medium in vigor and height, productive; fruit hard to pick; medium to small, wedge-conic to blunt-conic, unattractive dark red, juicy, very firm, subacid; quality poor; late.

Abington. **1.** *Ohio Sta. Bul.* **178**:45. 1906. **2.** *N. Y. Sta. Bul.* **309**:515. 1908.

Originated in 1895 as a chance seedling with Lester Blanchard, Abington, Massachusetts; introduced in 1905. At one time considered promising for commercial culture in the Northeast because of productiveness and of fair shipping qualities but has never become a leading variety. Perfect. Plants numerous, strongly vigorous, attacked by leaf-spot, very productive; fruit-stems long, thick, semi-erect; berries large, retain size well, wedge to round-conic or sometimes elongated, attractive light red, uniform; flesh light colored, moderately firm and juicy, mildly acid; fair to good; early midseason.

Abington Blush. **1.** *Gard. Mon.* **4**:211, 277, fig. 1862.

A seedling of Wilson exhibited before the Pennsylvania Horticultural Society in Philadelphia in 1862 by G. M. Kohl, the originator. Fruit greenish white with deep scarlet blush; flesh white.

Abundance. **1.** Flansburgh *Cat.* 8. 1914. **2.** *N. Y. Sta. Bul.* **447**:62. 1918.

A seedling of Indiana, originated by H. J. Schild, Ionia, Michigan, in 1909. Perfect. At this Station, plants low growing, with dark green foliage among which are thickly intermingled showy, midseason blossoms; runners numerous; fruit of medium size, oval or blunt-conic, necked, unattractive light red; flesh light red, medium in juiciness and firmness, sprightly; one of the so-called fig-type varieties; fair; late.

Abundance (of Stevenson). **1.** *Can. Hort.* **31**:75. 1908.

E. B. Stevenson, Guelph, Ontario, received plants of this sort in 1908 from Messrs. Woodruff & Sons, New York, and reported it worth trying. Perfect. Plants vigorous, healthy, and productive; seeds yellow; fruit medium in size, attractive scarlet, moderately firm; fair; late midseason.

Abundant. **1.** *Mass. Hort. Soc. Rpt.* 171. 1878.

Originated by Marshall P. Wilder, Dorchester, Massachusetts, and first exhibited by him before the Massachusetts Horticultural Society in 1878. Imperfect. Fruit large, conic, flattened; seeds sunken, red; color crimson; flesh red, solid, juicy; good.

Accident. **1.** *Va. Sta. Tech. Bul.* **11**:5. 1916.

A chance seedling which originated with S. W. Moore, Springfield, Missouri, in 1894. Perfect. Fruit medium in size, crimson; good; early midseason.

Accomac. 1. *Ann. Hort.* 210. 1891. 2. *N. Y. Sta. Bul.* **64**:4. 1894.

Raised from seed in 1887 by McMath Brothers, Onley, Virginia. Perfect. On the grounds at this Station, plants vigorous; runners few resulting in low yields; fruit medium to large, long-conic, light red, soft, acid, of pleasing flavor; good; rather late, season short.

Acme. 1. *Ore. Bien. Crop Pest & Hort. Rpt.* 79. 1915.

A seedling of Clark which originated with Mrs. Mabel Kaiser, Salem, Oregon, about 1907. At the Oregon Station it was inferior to Clark in productivity and size of fruit. Perfect. Plants medium in size and vigor, semi-erect, unproductive, good plant-maker; fruit-stems short, stiff, holding fruit up well; seeds raised; fruit below medium in size, uniform, roundish oblate, regular, dark red; flesh dark red, very firm, acid, slightly astringent; fair.

Ada. 1. *Mass. Sta. Bul.* **2**:25. 1888.

On trial at the Massachusetts Station in 1889. Plants weak, unproductive; fruit small, unattractive; poor; late.

Adams Favorite. 1. *Penn. Sta. Rpt.* 215. 1898–99.

Originated with Solomon Adams, Tamaqua, Pennsylvania, who sent it to the Pennsylvania Station for trial in 1896. Imperfect. Plants vigorous, unproductive; runners numerous; fruit large, blunt-conic, firm, acid; midseason.

Addison. 1. *N. Y. Sta. Bul.* **447**:63. 1918.

A cross of President by Marshall, originated at this Station in 1907 and sent out for trial in 1917. The variety has not held up to its earlier promises. Imperfect. Plants medium to few, vigorous, healthy, productive; fruit medium to very large, conic or blunt-wedge, necked, glossy medium red, juicy, variable in firmness, subacid; good; midseason.

Adonis. 1. *U. S. Pat. Off. Rpt.* 196. 1861.

Originated by William R. Prince, Flushing, New York, who introduced it about 1855. Imperfect. Plants vigorous, very productive; fruit large, roundish oblate, light scarlet, sprightly; late.

Advance. 1. *N. Y. Sta. Bul.* **447**:63. 1918.

A cross between Autumn and Cooper, originated in 1907 by Samuel Cooper, Delevan, New York. Perfect. On the Station grounds, plants few, medium in vigor, size, and yield; autumn-bearing; fruit-stems short; berries medium in size and color, conic; seeds much raised; flesh firm, mildly subacid, not highly flavored; fair; early.

Advance (of Printz). 1. *N. Y. Sta. Rpt.* 483. 1908.

Introduced about 1904 by Arthur B. Printz of Indiana. Perfect. At this Station the fruit is inferior in size, shape, and quality. Plants numerous, vigorous, productive; leaves light green; flowers early; fruit-stems long, slender, prostrate; picks easily; calyx small, not leafy, discolored, flat, pale green; seeds slightly sunken; fruit of medium size, elongated, apex sharply pointed, color medium to light scarlet; flesh medium red, soft, acid, not high in flavor; poor to fair; early.

Advancer. 1. *N. Y. Sta. Bul.* **64**:4. 1894.

Originated with R. S. Cole, Harmons, Maryland, who introduced it about 1892. Perfect. Station plants medium in number, with good foliage, unproductive; fruit medium in size, dark red, firm; very good; season early, short.

Advocate. 1. *Va. Sta. Tech. Bul.* **11**:6. 1916.

Originated in Canada; introduced about 1890. Perfect. Fruit large, round-conic, firm; good.

Afrique. 1. *Va. Sta. Tech. Bul.* **11**:6. 1916.

Introduced about 1870 by Samuel Miller, Bluffton, Missouri. Imperfect. Fruit of medium size, round-conic, dark crimson, firm; good.

Afton. 1. *Mich. Sta. Bul.* **100**:4. 1893.

A chance seedling which originated with C. W. Graham, Afton, New York, by whom it was introduced in 1894. Imperfect. Plants moderately vigorous, productive; runners numerous; leaves light green; fruit above medium in size, roundish conic, with a short neck, color very dark crimson; flesh dark, firm; good; early.

Agnes. 1. *Peninsula Hort. Soc. Rpt.* 111. 1897.

Mentioned as a cross between Bubach and Pearl. Plants more vigorous than Bubach; fruit of good color, firm; earlier than Bubach.

Agriculturist. 1. Fuller *Sm. Fr. Cult.* 88, fig. 26. 1867.

A cross between Green Prolific and Georgia Mammoth, raised by Seth Boyden, Newark, New Jersey, about 1858. It was widely grown between 1865 and 1875, but was displaced by better sorts. The American Pomological Society placed this variety in its catalog in 1869 and removed it in 1883. Imperfect. Plants very vigorous, hardy, productive; leaves thick, dark green; fruit very large, irregular conic, with a long neck, light reddish crimson; flesh dark red, firm, juicy, sweet; good.

Aishkum. 1. *Am. Pom. Soc. Rpt.* 163. 1920.

A cross between Black Beauty and Pan American originated by H. J. Schild, Ionia, Michigan, and introduced by him in 1918. "Indian strain of everbearing strawberry." Perfect. Fair to good plant maker, productive, everbearing.

Akasa. 1. *Am. Pom. Soc. Rpt.* 163. 1920.

Originated by H. J. Schild, Ionia, Michigan. "Indian strain of everbearing strawberry." Imperfect. Fair to good plant maker, productive.

Alabama. 1. *U. S. D. A. Pom. Rpt.* 393. 1891. 2. *N. Y. Sta. Bul.* **64**:4. 1894.

Originated in 1886 by Julius Schnadelbach, Grand Bay, Alabama. Perfect. At this Station, plants with almost perfect foliage, numerous; fruit of medium size, round-conic, dark red, firm, subacid; fair; midseason.

Alaska. 1. *N. Y. Sta. Bul.* **447**:63. 1918.

A cross between Climax and Glen Mary originated by T. C. Kevitt, Athenia, New Jersey. Of little value at this Station. Perfect. Plants vigorous, injured by leaf-spot, medium in yield; fruit large to medium, irregular long-conic to wedge, necked, glossy, medium to dark red; seeds sunken; flesh firm, mild, sweet; fair; midseason.

Alaska (of Stayman). 1. *Va. Sta. Tech. Bul.* 11:6. 1916.

Originated with James Stayman, Leavenworth, Kansas. Offered for sale in 1902. Perfect. Fruit medium in size, round-conic to wedge-shape, dark crimson; flesh medium red, firm, subacid; fair.

Alden. 1. *N. Y. Sta. Bul.* 447:63. 1918.

A cross between President and Marshall originated by this Station in 1907 and sent out for trial in 1917. It has not held up to its earlier promises. Imperfect. Plants medium in number, large, productive; fruit-stems long, prostrate; fruit large, round-conic, variable in color, juicy, medium to firm, mild, pleasantly flavored; good; midseason.

Alfonso XVIII. 1. *Rural N. Y.* 68:674. 1909.

Reported by the *Rural New-Yorker* in 1909 as a European sort of promise for the home garden. Perfect. Plants vigorous and healthy; fruit small to medium, conic, bright scarlet; flesh whitish, firm, sweet, rich; midseason.

Alice. 1. *Ind. Sta. Bul.* 73:80. 1898.

Sent out by S. B. Christian, Bradford, Ohio, in 1896. Imperfect. Plants productive; fruit large, regular; good.

Alice (of Hancock). 1. *Am. Pom. Soc. Rpt.* 126. 1891.

Introduced in 1891 by F. B. Hancock, Casky, Kentucky. Fruit large, conic, light colored; medium in quality.

Alice Hathaway. 1. *Ohio Sta. Bul.* 166:70. 1905.

Originated with Louis Hubach, Judsonia, Arkansas, who introduced it in 1903. Perfect. Plants tall, vigorous: fruit of medium size, short-conic, light dull red; flesh red, moderately firm, pleasant.

Alice Maud. 1. *Am. Pom. Soc. Rpt.* 106. 1852.

Princess Alice Maud. 2. *Gard. Chron.* 441. 1843.

Raised by James Trollop, Limpley Stoke, Wiltshire, England. Introduced in 1843. From 1850 to 1860 it was popular with the market gardeners around Washington, D. C. It was placed in the catalog of the American Pomological Society in 1862 and removed in 1871. Perfect. Plants vigorous, requiring high cultivation; fruit large, conic, dark glossy scarlet in color; flesh light scarlet, juicy, rich; excellent.

All Season. 1. Lovett *Cat.* No. 108, 7. 1923.

A cross between Progressive and Early Jersey Giant originated in 1917 by John A. Kemp, Little Silver, New Jersey. Introduced in 1923 by J. T. Lovett, Little Silver, New Jersey. Described as having large, vigorous, productive plants; fruit large, bright crimson; everbearing.

Allen. 1. *Rural N. Y.* 55:498. 1896.

Sent out in 1895 by W. F. Allen, Jr., Salisbury, Maryland. Perfect. Fruit-stems weak; fruit medium to large, long-conic, necked, light scarlet, moderately firm, subacid; good; midseason.

Allie. 1. *Ohio Sta. Bul.* **236**:214. 1912.

Originated with R. H. McDowell of Ohio about 1908. Perfect. Plants small, lacking in vigor; fruit-stems short, prostrate; calyx discolors; fruit medium in size, blunt-conic to nearly wedge-shape, dull light scarlet; flesh light in color, firm, juicy, mild, pleasant; midseason.

Almo. 1. *N. Y. Sta. Rpt.* 484. 1908.

A cross between Clyde and Crescent which originated in 1902 by J. A. Bauer, Judsonia, Arkansas. Imperfect. Plants at this Station medium in number, vigorous, productive, healthy; fruit medium to large, round-conic, dark red, very firm, rather acid; fair.

Almond. 1. *Rural N. Y.* **58**:514. 1899.

Originated with J. H. Black, Son & Co., Hightstown, New Jersey, about 1895. Perfect. At this Station, plants vigorous, medium in number, healthy; fruit of medium size, roundish, dark red, moderately firm, juicy; fair; midseason.

Alpha. 1. *Am. Pom. Soc. Rpt.* 93. 1883.

A cross between Wilson and Doctor Nicaise originated by Charles Arnold, Paris, Ontario, about 1877. Alpha was placed in the catalog of the American Pomological Society in 1891, but was removed at the next revision of the catalog in 1897. Perfect. Plants vigorous and productive; fruit large, ovate-conic, firm, light red; good; very early.

Alpha (of Riehl). 1. *Va. Sta. Tech. Bul.* **11**:6. 1916.

Originated with E. H. Riehl, Alton, Illinois. Described as an " Everbearer."

Alton. 1. *Va. Sta. Tech. Bul.* **11**:6. 1916.

Originated with E. H. Riehl, Alton, Illinois. Described as an " Everbearer."

Alvin. 1. *N. Y. Sta. Bul.* **447**:64. 1918.

Originated about 1908 by Louis Hubach, Judsonia, Arkansas, by crossing Klondike with Climax. Imperfect. Station plants very few, medium in size and vigor, productive, healthy; fruit large, wedge to round-conic, dull light red, very juicy, medium firm, sprightly; poor; midseason.

Amanda. 1. *N. Y. Sta. Bul.* **309**:516. 1908.

Amanda was originated by Z. T. Mumma, Bluffton, Ohio, in 1904, as a cross between Sample and Maximus. Perfect. Plants very numerous, vigorous, tall, susceptible to leaf-spot, very productive; fruit-stems long, thick, erect; berries large, of good size throughout the season, wedge to round-conic, the largest deeply furrowed and occasionally coxcombed, glossy light to dark red, variable; seeds much sunken; flesh well colored to the center, juicy, very firm, pleasantly acid, agreeably flavored; good; midseason.

Amateur. 1. *Rural N. Y.* **43**:495, fig. 241. 1884.

Sent out in 1884 by Reuben C. Hart, West Farmington, Connecticut, who raised it from mixed seed of Lennig and Green Prolific, pollinated with Charles Downing. Imperfect. Plants vigorous, productive, subject to rust; fruit large, round, light scarlet; flesh white, soft, sweet; good; midseason.

Amateur (of Pain). 1. *Gard. Mon.* **8**:278. 1866.

Mentioned in 1866 as having been originated by J. A. Pain. Imperfect. Plants productive; fruit large, conic, crimson, with fine flavor.

America. 1. Downing *Fr. Trees Am.* 978. 1869.

Raised by J. Keech, Waterloo, New York, who exhibited it in Rochester, in 1866. America was added to the catalog of the American Pomological Society in 1875, and removed in 1879. Perfect. Fruit large, obtuse-conic, often wedge-shape, crimson; flesh firm, juicy, rich, subacid.

America (of Virginia). 1. *Mich. Sta. Bul.* **122**:6. 1895.

Sent out by the Cleveland Nursery Company, Rio Vista, Virginia, about 1892. A seedling of Great American. Perfect. Plants vigorous, runners few; fruit medium in size, round-conic, attractive dark scarlet, firm; midseason.

American. 1. *Va. Sta. Tech. Bul.* **11**:7. 1916.

Originated with H. J. Schild, Ionia, Michigan, who listed it in 1910. Perfect.

American Queen. 1. *U. S. Pat. Off. Rpt.* 198. 1861.

A seedling of Montevideo Pine originated by G. W. Huntsman, Flushing, New York. Introduced about 1850. Imperfect. Plants productive; fruit very large, conic, bright scarlet, acid; good; midseason.

Americus. 1. *N. Y. Sta. Bul.* **336**:52. 1911.

A cross between Louis Gauthier and Pan American originated in 1905 by Harlow Rockhill, Conrad, Iowa. Perfect. Plants at this Station few, small, healthy, unproductive; autumn-bearing; new plants often bloom as soon as they take root; fruit medium in size, roundish, light red, medium juicy, firm, mildly subacid; fair; late.

Amwell. 1. *Rural N. Y.* **62**:518. 1903.

Sent out by Thomas R. Hunt, Lambertville, New Jersey, about 1901. Imperfect. Plants vigorous, productive; calyx large; fruit large, conic, dark crimson, sweet; very good.

Angelique. 1. *Mag. Hort.* **28**:400. 1862.

Raised by William Prince, Flushing, New York, prior to 1862. Plants vigorous, hardy and productive; fruit large, conic, bright scarlet, juicy; excellent.

Angola. 1. *N. Y. Sta. Bul.* **447**:64. 1918.

A cross between President and Marshall raised at this Station in 1907. Imperfect. Plants very numerous, vigorous, healthy, very productive; fruit-stems long, thick, prostrate; fruit very large to medium, round-conic to blunt-wedge, glossy, medium to light red, very juicy, bruises easily, medium firm, sprightly; good; midseason.

Anlo. 1. *N. Y. Sta. Bul.* **147**:184. 1898.

Originated with A. D. Leffel, Anlo, Ohio. Introduced about 1895. Imperfect. Plants numerous; fruit large, irregular round-conic, dull scarlet, moderately firm; good; late midseason.

Anna Forest. 1. *Rural N. Y.* **46**:512. 1887. 2. *N. Y. Sta. Bul.* **64**:5. 1894.

Originated in Ross County, Ohio, about 1880. Perfect. At this Station, plants form runners very slowly, unproductive; fruit medium to large, round-conic, glossy dark red, firm, with whitish flesh, mildly subacid; fair; midseason.

Anna Kennedy. 1. Lovett *Cat.* 4. 1895. 2. *N. Y. Sta. Bul.* **147**:184. 1898.

A cross between Jersey Queen and an unknown seedling raised by J. T. Lovett, Little Silver, New Jersey, about 1885, and introduced by him in 1895. Imperfect. Plants moderately vigorous and rather unproductive; fruit-stems short, erect; fruit of medium size, roundish, light scarlet, firm; flesh light; fair; early.

Annie Hubach. 1. *Va. Sta. Tech. Bul.* **11**:7. 1916.

Anna. 2. *Ore. Bien. Crop Pest & Hort. Rpt.* 54. 1915.

Originated by Louis Hubach, Judsonia, Arkansas, as a cross between Warfield and Thompson. Introduced in 1903. Perfect. Plants weak, moderately productive; fruit-stems short; fruit medium in size, round-conic, with a slight neck, light crimson; flesh pale red, firm, subacid; fair; early midseason.

Annie Laurie. 1. *Am. Gard.* **15**:435. 1894. 2. *N. Y. Sta. Bul.* **91**:190. 1895.

Originated about 1889 by John F. Beaver, Dayton, Ohio. The fine quality and handsome appearance of this sort has made it a desirable variety for the home garden in some sections. Perfect. Plants at this Station very vigorous, numerous, moderately productive; fruit medium to large, oblate, bright red, moderately firm; good; late.

Apache. 1. *Mich. Sta. Bul.* **163**:61. 1898.

Originated with James Stayman, Leavenworth, Kansas, who introduced it about 1895. Perfect. Plants moderately productive, very vigorous; runners numerous; fruit medium in size, long-conic, light scarlet, rather soft; poor; early midseason.

Arabine. 1. *Am. Pom. Soc. Rpt.* 164. 1920.

Originated in 1914 by S. H. Warren, Weston, Massachusetts. Plants at this Station lacking in constitution, unproductive; fruit above medium to small, light red, tender, juicy, mildly subacid; inferior.

Arcade. 1. *N. Y. Sta. Bul.* **447**:65. 1918.

A cross between President and Marshall raised at this Station in 1907. Perfect. Plants medium in number, vigorous, productive; fruit-stems long, thick; sepals long, broad; fruit large, retains size well, conic or wedge, glossy medium red, very juicy, firm, pleasantly flavored, sprightly; good; midseason.

Arena. 1. *Va. Sta. Tech. Bul.* **11**:7. 1916.

A seedling of Wilson which originated about 1870 with George Robbins, Menomonie, Wisconsin. Fruit of medium size, round-conic, light crimson; good; early midseason.

Argyle. 1. *N. Y. Sta. Bul.* **447**:65. 1918.

Raised at this Station in 1907 as a cross between President and Marshall. Perfect. Plants medium in number, vigorous, healthy, productive; calyx small; fruit above medium to very large, round-conic, glossy, medium to dark red, juicy, firm, mild, sweet, highly flavored; very good; midseason.

Ariadne. 1. *Mag. Hort.* **25**:498. 1859.

Originated by William Prince, Flushing, New York; introduced in 1859. Imperfect. Plants vigorous, very tall, very productive, with large, dark green foliage; fruit-stems tall, strong, erect; fruit large, conic, slightly necked, light scarlet, sweet, finely flavored.

Arizona. 1. *Cal. Sta. Rpt.* 379. 1895–97.

Arizona Everbearing. 2. *Am. Pom. Soc. Cat.* 44. 1901.

Mexican. 3. *Am. Gard.* 20:24. 1899.

A chance seedling supposed to be from Jessie or Gandy which originated in Phœnix, Arizona. Introduced about 1890. In the hot sections of Arizona and the Pacific Southwest where resistance to drouth and heat is important, Arizona was a popular variety between 1895 and 1905. The American Pomological Society placed Arizona in its catalog in 1901, but it was removed at the next revision of the catalog in 1909. Perfect. Plants few; fruit medium in size, round-conic, light scarlet; flesh light red, soft, mild, subacid; good; midseason.

Arkansas.

Arkansas Black. 1. *N. Y. Sta. Bul.* 309:516. 1908.

A seedling of unknown parentage originated in 1900 by Louis Hubach, Judsonia, Arkansas. Perfect. At this Station, plants few, medium in vigor, productive; fruit large to medium, round-conic, very dark red, firm, mildly acid; good to very good; early.

Arkansas Traveler. 1. *N. Y. Sta. Bul.* 64:5. 1894.

Originated with T. G. Michel, Judsonia, Arkansas; introduced in 1891. Perfect. At this Station, plants very numerous, with excellent foliage, unproductive; fruit medium to large, borne on long prostrate stems, round-conic, dark red, firm, subacid; fair to good; midseason, lasting about 10 days.

Arlington. 1. *Mich. Hort. Soc. Rpt.* 241. 1886.

Introduced about 1885. Perfect. Plants hardy, vigorous, moderately productive; fruit medium in size, roundish conic, bright crimson, soft, juicy, acid; good; midseason.

Arnold Pride. 1. *Mich. Hort. Soc. Rpt.* 167. 1882.

A cross between Wilson and Doctor Nicaise, originated about 1877 by Charles Arnold, Paris, Ontario. Perfect. Plants very vigorous, very productive; fruit large, irregular conic, dull scarlet, firm, moderately juicy, mildly subacid, pleasant; late.

Arnout. 1. *Mich. Sta. Bul.* 176:7. 1899. 2. *N. Y. Sta. Rpt.* 485. 1908.

Originated with J. L. Arnout, Luzerne County, Pennsylvania; introduced in 1905. An unusually productive sort but berries unattractive in appearance. Semi-perfect to perfect. Plants at this Station, medium in number and vigor, susceptible to leaf-spot, very productive; fruit large to medium, wedge or round-conic, dull dark red, firm, mildly acid; good; midseason.

Aroma. 1. *Col. O. Hort. Soc. Rpt.* 219. 1887. 2. *Can. Hort.* 19:2, fig. 871. 1896. 3. *Va. Sta. Tech. Bul.* 11:8. 1916.

For a large berry of very good quality, Aroma is now a splendid commercial sort from the Mississippi to the Atlantic. The berries are uniform in size, firm, and keep and ship well. The plants are resistant to disease, withstand drouth well, are very productive and are adapted to nearly all strawberry soils, although they prefer clay and silt loams. Aroma is a seedling of Cumberland and originated in 1889 with E. W. Cruse, Leavenworth, Kansas; introduced in 1892. The American Pomological Society placed the variety in its list of recommended fruits in 1909.

Perfect. Plants numerous, medium in vigor and height, healthy, very productive; leaves small, thin, light green, smooth, glossy. Flowers late midseason; petals 6–8; stamens numerous; receptacle large. Fruit midseason to late, ripening period long, withstands drouth well, a good shipper; fruit-stems short, thick, erect; pedicels short, thick; calyx large, flat to slightly raised, well colored, leafy; sepals long, broad; berries large, uniform in size, chunky wedge to blunt-conic; apex obtuse, often indented; color attractive light to medium red, glossy; seeds raised; flesh well colored to the center, juicy, very firm, pleasantly sprightly; quality good.

Arrow. 1. *Am. Gard.* **17**:498, 627. 1896.

A seedling of Haverland which it closely resembles, originated in 1890 with E. W. Cone, Menomonie, Wisconsin. Imperfect. Plants moderately numerous, vigorous and moderately productive; fruit medium in size, shape of Haverland, light crimson, firm, subacid; very good; midseason.

Ashland. 1. *Va. Sta. Tech. Bul.* **11**:8. 1916.

Sixteen to One. 2. *Ore. Bien. Crop Pest & Hort. Rpt.* 87. 1915.

This was one of several unnamed seedlings received by George Irwin, Ashland, Oregon, from M. Crawford, Cuyahoga Falls, Ohio, about 1892. Perfect. Plants numerous, vigorous, erect, productive; fruit medium to large, irregular round-conic, light crimson; flesh medium red, soft, sweet; good; early midseason.

Ashton. 1. *N. Y. Sta. Bul.* **447**:65. 1918.

A cross between President and Marshall, raised at this Station in 1907. Perfect. Plants medium in number, vigorous, healthy, productive; fruit-stems semi-erect; fruit large, round-conic, glossy medium to dark red; seeds raised; flesh juicy, firm, sprightly; good; midseason.

Athens. 1. *N. Y. Sta. Bul.* **447**:65. 1918.

Raised at this Station in 1907 as a cross between President and Marshall. Perfect. Plants medium in number, vigorous, usually healthy, very productive; fruit-stems thick, semi-erect; fruit large, irregular wedge to conic, usually necked, glossy medium to dark red, very juicy, firm, pleasantly flavored, sprightly; good; midseason.

Atkins Continuity. 1. *N. Y. Sta. Bul.* **401**:172. 1915.

Received at this Station in 1910 from William Fell, Hexham, England. Of little value. Perfect. Plants medium in number and vigor, unproductive, susceptible to leaf-spot; fruit above medium in size, round-conic or wedge, medium red, glossy, firm, mildly subacid, with a white center, inferior in flavor; fair; early.

Atlantic. 1. *Rural N. Y.* **42**:424, fig. 367. 1883.

A chance seedling found about 1877 by D. L. Potter, Hammonton, New Jersey. In most places Atlantic failed, but in Oswego County, New York, it was a leading variety; valued for its lateness and remarkable shipping qualities. Perfect. Plants medium in number, vigorous, productive; fruit large, conic, dark crimson; flesh light red, very firm, subacid; good; late.

AROMA

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Auburn. 1. *Ann. Hort.* 210. 1891.

A seedling of Haverland which originated in 1886 with Samuel Gillespie, Butler County, Ohio. Imperfect. Plants medium in number, vigorous, unproductive; fruit medium to large, round-conic, crimson; flesh bright scarlet, firm, subacid; good; early midseason.

Augwick. 1. *Mich. Sta. Bul.* **104**:66. 1894.

Brought to notice about 1891. Imperfect. Plants vigorous; fruit large, firm; good; midseason.

Aurora. 1. *N. Y. Sta. Bul.* **447**:66. 1918.

A seedling of Prolific raised at this Station in 1907. Perfect. Plants numerous, very vigorous, injured by leaf-spot, medium in yield; fruit-stems short, thick, semi-erect; fruit large, retains size well, long-conic to long-wedge, glossy medium red, juicy, firm, pleasantly sprightly; good; late midseason.

Austin. 1. Fuller *Sm. Fr. Cult.* 88. 1867.

Austin Shaker. 2. *Mag. Hort.* **26**:217, 308. 1860.

Austin's Seedling. 3. *U. S. Pat. Off. Rpt.* 199. 1861.

Raised about 1856 at the Shaker settlement, Watervliet, New York. It was thought to be a seedling of Iowa. Perfect. Plants numerous, vigorous, and productive; fruit large, roundish conic, light scarlet; flesh whitish, soft, acid; poor; late.

Australian. 1. *Mich. Sta. Bul.* **118**:4. 1895.

Australian Everbearing. 2. *Ann. Hort.* 134. 1893.

Australian Crimson. 3. *Am. Pom. Soc. Rpt.* 127. 1891.

Introduced in California in 1885 by E. J. Baldwin who is said to have secured plants from Australia where the variety originated. It was grown extensively around Los Angeles for shipping, until superseded by Brandywine. The American Pomological Society placed this variety in its catalog in 1899 and removed it in 1900. Perfect. Plants medium in number, heat and drouth resistant; fruit medium to large, round-conic, crimson; flesh medium red, very firm, subacid; good; very early.

Auto. 1. *N. Y. Sta. Bul.* **218**:195. 1902.

Said to have been brought from Germany prior to 1897 in which year it was introduced in this country by J. H. Thomas, Wyoming, Delaware. Perfect. Plants at this Station vigorous, numerous, medium productive; fruit lacks uniformity in size and shape, medium to very large, conical, attractive dark red, firm, moderately juicy, mild; fair to good; midseason.

Autumn. 1. *Am. Pom. Soc. Rpt.* 16. 1907. 2. *N. Y. Sta. Bul.* **401**:172. 1915.

A seedling of Pan American raised in 1902 by Samuel Cooper, Delevan, New York. Imperfect. Plants at this Station very few, very productive; autumn-bearing; fruit medium to small, broad-conic, flattened at the base, medium red, juicy, firm, sweet, pleasantly flavored; good; late.

Autumn Belle. 1. *Ore. Bien. Crop Pest & Hort. Rpt.* 56. 1915.

A cross between Magoon and a wild Oregon strawberry, raised by Benjamin Worsley, Svensen, Oregon. Perfect. Plants few, below medium in vigor, unproductive; fruit below medium in size, broad-conic, dark red; flesh medium to dark red, soft, sweet; fair.

Autumn King. 1. *N. Y. Sta. Bul.* **447**:66. 1918.

A cross between Autumn and Chesapeake raised by E. W. Townsend, Salisbury, Maryland, who introduced it in 1914. Perfect. Plants as grown at this Station very few, medium in vigor and yield, healthy; autumn-bearing; fruit medium in size, conic, necked, variable in color; flesh firm, medium juicy, mildly subacid, inferior in flavor; poor to fair; late.

Avery. 1. *Mich. Sta. Bul.* **163**:66. 1898.

Originated with E. C. Avery of Pennsylvania, introduced about 1894. Very similar to Haverland. Imperfect. Plants lacking in vigor; fruit of medium size, long-conic, bright scarlet; flesh dark red, juicy, soft; very good; midseason.

Bachelor. 1. *N. J. Hort. Soc. Rpt.* 7. 1878.

Raised by E. W. Durand, Irvington, New Jersey, prior to 1878. Plants vigorous; fruit medium in size, attractive red, rich.

Backett Prolific. 1. *Va. Sta. Tech. Bul.* **11**:9. 1916.

Beckert's Prolific. 2. *Gard. Mon.* **21**:239. 1879.

A cross between Wilson and Jucunda; introduced about 1875. Imperfect to semi-perfect. Fruit medium in size, conic, crimson, firm, subacid; very good; late midseason.

Bailey. 1. *Ohio Sta. Bul.* **154**:31. 1904.

Sent to the Ohio Station in 1903 for trial. Perfect. Plants vigorous and unproductive; fruit of medium size, short-conic, slightly necked, dark crimson; flesh pink, firm; excellent.

Baldwin Pride. 1. Baldwin *Cat.* 9. 1909.

Introduced by O. A. D. Baldwin, Bridgman, Michigan. Perfect. Plants medium in number and vigor, unproductive; calyx large, detaching easily; fruit medium in size, irregular conic, dark red; flesh light red, subacid, moderately firm; fair to good; midseason.

Baltimore. 1. Townsend *Cat.* No. 22, 3. 1912–13. 2. *N. Y. Sta. Bul.* **401**:172. 1915.

Supposed to have originated in Germany about 1884. E. W. Townsend & Sons, Salisbury, Maryland, introduced Baltimore in 1912. Perfect. Plants at this Station numerous, vigorous, productive; fruit large, irregular in shape, wedge, often coxcomb, glossy medium red, juicy, tender, with white center, sweet, mild, strongly aromatic; good; midseason.

Baltimore Scarlet. 1. *U. S. Pat. Off. Rpt.* 196. 1861.

Originated with Robert Buist, Philadelphia, Pennsylvania; introduced before 1847. A leading sort in New York, Pennsylvania, and Maryland for a number of years. Imperfect. Fruit medium in size, blunt-conic, bright scarlet; very good; early.

Banana. 1. *Am. Hort. Ann.* 106. 1870.

A seedling of Agriculturist originated by J. D. Willard, Hartford, Connecticut; introduced in 1870. Fruit large, conic, with a long neck, light scarlet, soft, of Hautbois flavor.

Bancroft. 1. *Can. Exp. Farm Bul.* **5**:10. 1889.

Introduced about 1880. Imperfect. Plants few, lacking in vigor and productivity; fruit medium to large, of the type of Manchester; early.

Banner. 1. Hyde *Cat.* 23. 1922.

A chance seedling which originated in 1899 on the Sweet Briar Ranch, Sweet Briar, California. Banner has shown little merit at this Station. Perfect. Plants medium in number, vigor, and yield, healthy; fruit large to small, oblong-conic to wedge, glossy dark red; fruit-stems short, prostrate; flesh very firm, medium juicy, sweet, mild; good; early.

Banquet. 1. *Rural N. Y.* **43**:635, fig. 374. 1884. 2. *U. S. D. A. Rpt.* 419, Pl. IV. 1890.

A cross between Miner and a wild strawberry raised in 1880 by J. R. Hawkins, Mountainville, New York. Valued for the home garden as it possessed the flavor and aroma of the wild berry. Imperfect to semi-perfect. Plants few, very vigorous; fruit medium in size, long-conic, dark crimson; flesh firm, light red, sweet, aromatic; very good; midseason.

Barkley. 1. Townsend *Cat.* No. 22, 2. 1912–13. 2. *N. Y. Sta. Bul.* **401**:172. 1915.

Found in the wild in 1905 by S. Barkley, Nanticoke, Maryland. Perfect. Plants at this Station large, numerous, vigorous, productive; fruit large to medium, conic or wedge, light to medium red, dull, firm, sweet, pleasantly flavored; good; early.

Barnes Mammoth. 1. Downing *Fr. Trees Am.* 979. 1869.

Raised by D. H. Barnes, Poughkeepsie, New York. Perfect. Plants very vigorous and very productive; fruit large, roundish conic, crimson; flesh scarlet, firm, juicy, sprightly subacid; early.

Barrymore. 1. *Rural N. Y.* **67**:586. 1908. 2. *N. Y. Sta. Bul.* **385**:313. 1914.

Raised in 1901 by H. L. Crane, Westwood, Massachusetts, by crossing Sample with a seedling from A. B. Howard. At this Station it made a fine record, producing large, unusually attractive berries of high quality. Perfect. Plants very productive, medium in vigor and height; fruit large, blunt-conic to wedge, glossy dark red, juicy, firm, pleasantly flavored, sprightly; very good; early midseason.

Barton. 1. *N. Y. Sta. Bul.* **44**:142. 1892.

Barton's Eclipse. 2. *Can. Exp. Farm Bul.* **62**:27. 1909.

Eclipse. 3. *Mich. Sta. Bul.* **106**:124. 1894.

A cross between Longfellow (of Webb) and Sharpless originated in 1882 by T. B. Barton, Columbus, Kentucky. This variety has been widely tested and is fairly productive of attractive fruit. The foliage rusts badly in some sections. Imperfect. At this Station, plants numerous, very vigorous; fruit large to very large, conical, rounding in large specimens, dark red, medium firm, subacid; good to very good; midseason.

Battenburg. 1. *N. Y. Sta. Bul.* **336**:52. 1911.

A seedling raised by A. T. Goldsborough, Wesley Heights, Washington, D. C. Perfect. Plants at this Station few, of medium size and vigor, healthy, very productive; fruit large, wedge to round-conic, roughish, glossy light red, juicy, firm, sprightly or tart; good; midseason.

Bauer. 1. *Ind. Sta. Bul.* **200**:9. 1917.

Bauer No. 9. 2. *Ohio Sta. Bul.* **236**:216. 1912.

Originated with J. A. Bauer, Judsonia, Arkansas, who introduced it in 1909. Imperfect. Plants medium to few, vigorous, productive; fruit large, conic, light crimson; flesh light salmon, soft, acid; poor; late midseason.

Bayne Extra Early. **1.** Kenrick *Am. Orch.* 304. 1845.

Bayne's Early Scarlet. **2.** *U. S. Pat. Off. Rpt.* 199. 1861.

A native sort discovered by Dr. J. H. Bayne, Alexandria, Virginia, and brought to notice about 1843 It was a popular sort around Norfolk and Baltimore from 1848 to 1860. Perfect. Plants productive; fruit round, deep scarlet, fine quality; very early.

Bayne Incomparable. **1.** Kenrick *Am. Orch.* 304. 1845.

Originated with Dr. J. H. Bayne, Alexandria, Virginia, who introduced it about 1843. Plants very vigorous and very productive; fruit very large, roundish to coxcomb; flesh pale scarlet, firm, with a fine flavor.

Bayside. **1.** Todd *Cat.* 5. 1913.

Originated in Maryland several years prior to 1913 in which year it was introduced by W. S. Todd, Greenwood, Delaware. Perfect. Plants of Gandy type but larger and more vigorous; fruit large, regular, round-conic, dark glossy red, firm; good.

Beacon. **1.** *Am. Pom. Soc. Rpt.* 209. 1922. **2.** *N. Y. Sta. Bul.* **497**:17. 1923.

Beacon was sent out from this Station several years ago as one of the best early strawberries. The fruits are about the handsomest of their season, and hold up well throughout adverse conditions at ripening time. The quality is excellent for an early strawberry. The plants are numerous, healthy, productive, vigorous, and bear the fruits on long pedicels which make picking easy. Beacon is a cross between President and Marshall which originated at this Station in 1911; introduced by the New York State Fruit Testing Association in 1923.

Perfect. Plants numerous, vigorous, tall, healthy, productive; leaves large, thick, dark green, smooth. Flowers early midseason; petals 5–8, large; stamens numerous; receptacle medium to large. Fruit early, ripening period long, picks easily, holds up well in size; fruit-stems long, thick, semi-erect to prostrate; pedicels long, slender; calyx large, flat or slightly raised, well colored, adherent; sepals narrow; berries large, uniform, blunt-wedge to blunt-conic, slightly furrowed and necked; apex obtuse; color dark glossy red; seeds mostly raised; flesh red to the center, juicy, firm, subacid, pleasantly flavored; quality good.

Beaderarena. **1.** Etter *Cat.* 22. 1920.

A cross between Arena and Beder Wood, originated by Albert F. Etter, Ettersburg, California, in 1912. Imperfect. At this Station, plants very numerous, vigorous, healthy, productive; flowers hidden by the foliage; fruit above medium to small, irregularly roundish; seeds much sunken; glossy dark red; juicy, distinctly whitish at center, soft, subacid; fair; very late.

Beal. **1.** *Am. Pom. Soc. Rpt.* 164. 1920.

A seedling of Belt, originated in 1912 by T. C. Kevitt, Athenia, New Jersey. Perfect. Plants at this Station numerous, vigorous, healthy, unproductive; fruit medium in size, conic, necked, dull dark red, medium juicy, very firm, subacid; poor; midseason.

Beauty. **1.** *N. J. Hort. Soc. Rpt.* 8. 1878.

Essex. **2.** *Ill. Hort. Soc. Rpt.* 201. 1879.

Raised by E. W. Durand, Irvington, New Jersey, about 1870; introduced about 1876.

BEACON

Perfect. Plants few, large, vigorous, very productive; fruit large, regular, conic, with a long neck, dark crimson; flesh light red, firm; very good; late.

Beauty (of Haynes). 1. *N. Y. Sta. Bul.* **76**:432. 1894.

Originated with J. H. Haynes, Delphi, Indiana, who introduced it in 1892. Imperfect. At this Station, plants numerous, with excellent foliage, productive; fruit medium to large, round-conic, glossy dark red, soft, juicy; early, season long.

Beaver. 1. *N. Y. Sta. Bul.* **276**:67. 1906.

A chance seedling of unknown parentage found about 1901 by J. F. Beaver, Dayton, Ohio. Perfect. Plants at this Station medium in number and vigor, injured by leaf-spot, not very productive; fruit above medium in size, round-conic, dull pale red, variable in color, firm, acid, whitish, picks with difficulty; fair; midseason.

Beavers. 1. *Mich. Sta. Spec. Bul.* **48**:4. 1909.

Originated with C. E. Wightman, Mt. Vernon, Washington; brought to notice about 1904. Imperfect. Plants below medium in number, lacking vigor, unproductive; fruit below medium in size, broad-conic, dark red; flesh dark red, firm, acid; fair; midseason.

Beder Wood. 1. *Ia. Hort. Soc. Rpt.* 263. 1891. 2. *Va. Sta. Tech. Bul.* **11**:10. 1916. *Racster.* 3. *Rural N. Y.* **50**:527. 1891.

This old variety was in its day one of the most productive early strawberries. It was a favorite in western New York and in the Mississippi Valley, especially valued as a good pollinizer for other early sorts. It was also the most resistant to drouth of any of the standard strawberries and the fruits held their size throughout a long picking season. The variety is being discarded, however, because the fruits run small, are not very firm and are rather poor in quality. It is best adapted to heavy soils. This variety originated in 1881 with Beder Wood, Moline, Illinois. Mr. Wood sent plants to friends in Iowa for trial, whence the variety fell into the hands of John Racster of Davenport, who introduced it under his own name in 1890. Later the sort was sent out as Beder Wood. The American Pomological Society listed the variety in its catalog of recommended fruits in 1897.

Perfect. Plants medium in number, vigor and height, susceptible to leaf-spot, very productive; leaves small, narrow, dark green, smooth. Flowers very early and very numerous, even with the foliage, small; petals 6–8, small, not overlapping; stamens numerous. Fruit early, ripening period long; fruit-stems long, thick, prostrate; pedicels short; calyx small, flat or slightly raised, well colored; sepals long, narrow; berries produced in large clusters, medium, uniform, round-conic; apex obtuse; color light red; seeds sunken; flesh juicy, medium to firm, soft under unfavorable conditions, whitish towards the center, brisk subacid, not highly flavored; fair in quality.

Beebe. 1. Lovett *Cat.* 4. 1891. 2. *Mich. Sta. Bul.* **129**:5. 1896.

A chance seedling which originated on the grounds of E. P. Beebe, Elizabeth, New Jersey, in 1885. Perfect. Plants medium in vigor and productivity; fruit medium in size, irregular, round-conic, light crimson, mild, subacid; good; midseason.

Beecher. 1. *N. Y. Sta. Bul.* **109**:234. 1896.

Henry Ward Beecher. 2. Lovett *Cat.* 4. 1893.

Originated by H. H. Allen, Hilton, New Jersey; introduced in 1893 by J. T. Lovett.

Little Silver, New Jersey. A cross between Champion and Sharpless. Perfect. At this Station, plants numerous, unproductive; fruit-stems short; fruit large, round-wedge, dark red, firm; poor; early.

Beede. 1. *Mass. Sta. Bul.* **37**:21. 1896.

Originated with G. F. Beede, Fremont, New Hampshire; introduced about 1901. Perfect. Plants numerous, medium in vigor and productivity; fruit large, conic, bright scarlet; good.

Beidler. 1. *N. Y. Sta. Bul.* **276**:67. 1906.

Thompson No. 602. 2. *Ill. Hort. Soc. Rpt.* 293. 1905.

Originated by M. T. Thompson, Rio Vista, Virginia; introduced by him in 1905. Imperfect. At this Station, plants numerous, vigorous, very productive, injured by leaf-spot; fruit large to very large, wedge, sometimes coxcomb, light and dark red, green or pale at the tips, firm, juicy, acid; hardly fair; midseason.

Belle. 1. *Mich. Hort. Soc. Rpt.* 308. 1891. 2. *N. Y. Sta. Bul.* **64**:5. 1894.

Originated about 1890 by M. T. Thompson, Lakewood, Ohio, from mixed seed. Perfect. Plants at this Station medium in number, with good foliage, unproductive; fruit medium to very large, holds size well, variable in shape, elongated-wedge, dark red, with greenish tips, juicy, acid; good; late.

Belle (of Moore). 1. *Gard. Mon.* **19**:335. 1877.

Originated by J. B. Moore, Concord, Massachusetts; introduced in 1876. Perfect. Fruit very large, irregular, coxcombed, crimson, medium firm, subacid; poor.

Belle de Bordelaise. 1. *Gard. Chron.* 808. 1859. 2. Downing *Fr. Trees Am.* 1007. 1869.

A cross between a Hautbois and White Alpine raised in 1854 by M. Lartey in France. Perfect. At this Station, plants remarkably vigorous, very productive; runners slender, reddish; fruit medium to small, oval or round-conic; fruit-stems very long, very deep red; calyx strongly reflexed; flesh juicy, soft, with a peculiar rich, rather strong flavor, not perceptibly acid.

Belle of La Crosse. 1. *Ann. Hort.* 201. 1892.

Introduced about 1889 by John A. Salzer, La Crosse, Wisconsin. Perfect. Plants moderately vigorous, productive; fruit large, round-conic, bright dark scarlet; flesh medium dark, firm, acid; good; late midseason.

Belmont. 1. *Am. Pom. Soc. Rpt.* 93. 1883. 2. *Gard. Mon.* **28**:240. 1886. 3. *N. Y. Sta. Bul.* **24**:330. 1890.

Originated about 1880 with Warren Huestis, Belmont, Massachusetts. Popular at one time on heavy soils in Massachusetts. Perfect. As grown at this Station, plants moderately vigorous and numerous, productive; fruit large, often coxcomb, oblong-conic, with thick neck, glossy red, firm, well flavored, subacid; good; late.

Belt. 1. *U. S. D. A. Farmers' Bul.* **1043**:28. 1919.

William Belt. 2. *Am. Gard.* **15**:434. 1893–94. 3. *Va. Sta. Tech. Bul.* **11**:101, fig. 18. 1916.

The berries of this variety are not firm enough for the market, but are especially valuable for home use because of their large size, handsome color and very good flavor.

BEDER WOOD

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The variety has long been a favorite in New England and New York. It should be planted in fertile soils and receive the best culture, and even so grown there are many irregular berries, and plant and fruit suffer from drouth. The variety originated about 1888 with William Belt, Mechanicsburg, Ohio; introduced in 1896; included in the American Pomological Society's recommended fruit list in 1889.

Perfect. Plants numerous, variable in some localities, vigorous, spreading, susceptible to leaf-spot, an uncertain bearer; leaves of medium size and thickness, variable in color. Flowers early midseason; petals 6–8; receptacle small. Fruit late; fruit-stems long, thick, erect; calyx flat or depressed; sepals broad; berries large, irregular, round-conic to wedge; apex slightly pointed; color glossy, dark deep red; seeds raised; flesh dark red to the center, juicy, firm, sweet, mildly subacid; quality very good to best.

Ben Davis. **1.** *Ohio Sta. Bul.* **166:**70. 1905. **2.** *Mo. Bd. Hort. Rpt.* 288. 1909.

Originated about 1900 with James Sons, Jr., Seligman, Missouri. Perfect. Plants numerous, vigorous, productive; fruit medium in size, round-conic to long-conic, sometimes coxcombed, light crimson, unattractive; flesh light red, firm, mildly subacid; good; midseason.

Benancie. **1.** *N. Y. Sta. Bul.* **447:**66. 1918.

A cross between Hubach and Hathaway, and Climax made by Louis Hubach, Judsonia, Arkansas, in 1908. Perfect. At this Station, plants few, medium in size and vigor, healthy, unproductive; fruit medium in size, wedge to blunt-conic, glossy dark red, juicy, firm, very sprightly, with dark red flesh; good; midseason.

Benjamin. **1.** *Ohio Sta. Bul.* **154:**31. 1904.

Originated in Minnesota; introduced in 1902. Perfect. Plants numerous, medium in vigor, productive; fruit large, long-conic, slightly necked, light scarlet; flesh pink, firm, dry; good.

Bennett. **1.** *N. Y. Sta. Bul.* **218:**196. 1902.

Originated in 1890 by L. W. Bennett, Cincinnati, Ohio. Imperfect. Plants at this Station medium in number, vigorous, productive; fruit averages medium in size, wedge, dark red, juicy, moderately firm, sweet; good; late.

Benoy. **1.** *Ont. Fr. Exp. Sta. Rpt.* 53. 1899.

Ran Benoy. **2.** *Ohio Sta. Bul.* **98:**71. 1899.

A cross between Bubach and Jessie, raised by Ran Benoy, Matthews, Indiana. Perfect. Plants medium in number and vigor, productive; fruit large, coxcombed, crimson, not evenly colored; flesh white, firm, rather acid; good; midseason.

Benson. **1.** Allen *Cat.* 15. 1920.

Introduced in 1919 by the W. F. Allen Company, Salisbury, Maryland, who received it from a Mr. Benson in western Maryland. Perfect. Plants few, medium in vigor and productivity; fruit large, irregular conic, necked, medium red; flesh red, juicy, medium firm, subacid; fair; very early, ripening over a long period.

Berlin. 1. *Wis. Sta. Bul.* **72**:4. 1889.

Originated in 1892 with A. H. Clark, Cambridge, Maryland, as a seedling of Bubach. Imperfect. Plants numerous; fruit medium to large, round-conic, dark crimson, firm; fair; midseason.

Berlin (of Schild). 1. *N. Y. Sta. Bul.* **401**:173. 1915.

A seedling of Haverland, originated by H. J. Schild, Ionia, Michigan, in 1902. Imperfect. Station plants numerous, vigorous, healthy, productive; fruit densely clustered, above medium in size, long-conic to wedge, glossy light red, colors unevenly, very juicy, tart, with whitish center, soft, inferior in flavor; poor; midseason.

Bertrand. 1. *Ohio Sta. Bul.* **364**:73. 1923.

On trial at the Ohio Station in 1914. Described as resembling Belt. Perfect. Plants medium in size, vigorous; leaves light green; calyx large, green, persistent; fruit large, regular, round-conic, a few wedge-shape, wrinkled and furrowed, uneven coloring from scarlet to crimson, frequently with white tips; flesh dark red, firm, sweet; excellent; midseason.

Beseck. 1. *Rural N. Y.* **47**:195. 1888.

A chance seedling which originated about 1888 with P. M. Augur & Sons, Middlefield, Connecticut. Imperfect. Plants medium in number, tall, vigorous, productive; fruit large, round-conic, scarlet; flesh light red, moderately firm, sweet; good; midseason.

Bessie. 1. *N. Y. Sta. Bul.* **336**:53. 1911.

A chance seedling found by D. B. Boomhower, Greenville, New York, in 1899. Thought to be a cross between Haverland and Captain Jack. Perfect. At this Station, plants very numerous and vigorous, large, unhealthy, productive; flowers unusually large; fruit above medium in size but variable, irregular in shape, dull light red, very juicy, soft, mild, sweet, aromatic; good; midseason.

Bessie (of Schnadlebach). 1. *N. Y. Sta. Bul.* **24**:338. 1890.

A seedling of Crescent which originated with Julius Schnadlebach, Grand Bay, Alabama; introduced in 1891. Imperfect. Plants numerous, very vigorous; fruit medium in size, conic, bright crimson, medium firm; flesh medium red; good; midseason.

Best. 1. Farmer *Cat.* 5. 1918.

Introduced in 1918 by L. J. Farmer, Pulaski, New York, who found it in a lot of plants received from the South several years previous. Worthy of trial. Perfect. Plants on the Station grounds, few, vigorous, healthy, unproductive; leaves large, thick, dark green; flowers late, large; fruit large, round-conic to blunt-wedge, glossy medium red; fruit-stems short, thick, prostrate; calyx large, flat, leafy; flesh juicy, very firm, sprightly; good; midseason to late.

Bethel. 1. *Mich. Sta. Bul.* **176**:4, 7. 1899.

Originated with H. W. Shockley, Donnelsville, Ohio; introduced about 1896. Imperfect. Plants numerous, vigorous, unproductive; fruit medium in size, round-conic, dark crimson; flesh dark, juicy; very good; late midseason.

BELT

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Bethel (of Thomas). **1.** *N. J. Hort. Soc. Rpt.* 173. 1912. **2.** *N. Y. Sta. Bul.* **401**:173. 1915.

A chance seedling found growing where a field of strawberries had previously been plowed under, by R. F. Thomas, Kent County, Delaware, in 1906. Perfect. At this Station, plants medium in number and vigor, healthy, very productive; fruit above medium in size, irregular in shape, medium to dark red, juicy, firm, tart; fair; midseason.

Better Belt. **1.** *Md. Sta. Bul.* **160**:207. 1911.

Introduced about 1909. Perfect. Plants small, vigorous; calyx small, persistent; fruit of medium size, round-conic, sometimes irregular, scarlet; flesh red, firm, juicy, mild.

Beverly. **1.** *Rural N. Y.* **50**:528. 1891. **2.** *N. Y. Sta. Bul.* **64**:5. 1894.

Raised from seed of Miner in 1887 by B. M. Smith, Beverly, Massachusetts. In 1890 it received a silver medal from the Massachusetts Horticultural Society as the best seedling strawberry. It has been a popular sort in New England. Perfect. Plants at this Station, few, medium productive, with good foliage; fruit of medium size, firm; good; early, season long.

Bickle. **1.** *Mich. Sta. Bul.* **100**:4. 1893.

Originated in Indiana; introduced about 1886. Imperfect. Plants medium in number and vigor, productive; fruit small, round-conic, light scarlet; flesh light, medium firm; fair; midseason.

Bidwell. **1.** *Am. Pom. Soc. Cat.* 42. 1879. **2.** *N. Y. Sta. Bul.* **24**:330. 1890.

Originated in 1872 by Benjamin Hathaway, Little Prairie Ronde, Michigan, by crossing a seedling of Old Scarlet with "some modern variety." Introduced in 1877 under the temporary name of Centennial by H. E. Bidwell, South Haven, Michigan. This name was changed to Bidwell in 1880. The variety has been valued for home use for many years. Bidwell was placed in the catalog of the American Pomological Society in 1879 and removed in 1899. Perfect. At this Station, plants stocky, vigorous, numerous, productive; fruit of medium size, long-conic, glossy dark red, moderately firm, subacid, not highly flavored; fair; early.

Big Ben. **1.** *Mich. Sta. Bul.* **189**:112. 1901.

On trial at the Michigan Station in 1900. Perfect. Plants medium in number, weak, unproductive; fruit small, round-conic, dark crimson, medium firm; fair; midseason.

Big Bob. **1.** *Am. Pom. Soc. Rpt.* 43. 1883.

Originated by J. W. Nigh, Piqua, Ohio, as a cross between Russell and Wilson. Imperfect. Plants few; fruit medium in size, roundish, crimson; flesh medium red, soft, acid; poor; midseason.

Big Bob Baby. **1.** *Va. Sta. Tech. Bul.* **11**:12. 1916.

A seedling of Big Bob originated by J. W. Nigh, Piqua, Ohio; introduced in 1885.

Big Bobs. **1.** *Can. Exp. Farm Bul.* **62**:27. 1909.

Originated by R. M. Shaw, Waterville, Nova Scotia. Perfect. Plants medium in number, vigorous; fruit irregular, roundish or wedge-shaped to long, color variable, pale to deep red; flesh pale red, firm, juicy, subacid; good; late.

Big Early. 1. *Ind. Sta. Bul.* **200**:9. 1917.

A chance seedling discovered in 1910 by E. Overman, Fairmount, Indiana. Imperfect. Plants numerous, tall, very vigorous, productive; leaves large, dark green; calyx of medium size, adherent; fruit medium to large, round-conic, medium red; flesh light red, soft, mildly subacid; fair; early.

Big Late. 1. Kellogg *Cat.* 64. 1917.

A chance seedling discovered in 1913 by George W. Davis, Brazil, Indiana. Imperfect. Plants at this Station numerous, medium in vigor, healthy, very productive; flowers cup-shaped; fruit variable in size, shape, and color; fruit-stems very long, thick, erect, carrying the fruit above the foliage; flesh juicy, very firm, sprightly; fair to good; late midseason.

Big Rock. 1. *N. Y. Sta. Bul.* **401**:173. 1915.

A seedling of Dawn originated in 1905 by H. J. Schild, Ionia, Michigan. Perfect. At this Station, plants numerous, productive; injured by leaf-spot; leaves very thick; fruit large, furrowed, irregular wedge, often necked, glossy medium red, not very juicy, firm, sweet; fair to good; midseason.

Big Wonder. 1. Kellogg *Cat.* 13. 1920.

A chance seedling discovered by one of the farm employees of R. M. Kellogg Company, Three Rivers, Michigan, in 1918. Perfect. Plants at this Station numerous, vigorous, productive; fruit above medium to small, conic, necked, dull light red, colors unevenly, medium in juiciness and firmness, white fleshed, subacid; good; midseason.

Billy Sunday. 1. *Am. Pom. Soc. Rpt.* 165. 1920.

A chance seedling found by D. P. Yost, Lancaster, Ohio, in 1907. Perfect. Plants numerous, unusually vigorous and tall, productive, injured by leaf-spot; leaves very large; petals large, crinkly; fruit large, wedge to round-conic, light red; fruit-stems long, thick, erect; flesh juicy, medium firm, mild; fair; midseason.

Bird. 1. *Mich. Sta. Bul.* **122**:6. 1895.

A cross between Manchester and Mount Vernon, originated by W. F. Bird, Ann Arbor, Michigan; introduced about 1892. Imperfect. Plants numerous, vigorous; fruit large, long-conic, bright dark scarlet; flesh light red, firm; very good; early midseason.

Bisel. 1. *Am. Gard.* **15**:434. 1894. 2. *N. Y. Sta. Bul.* **109**:234. 1896.

Dan Bisel. 3. *Mich. Hort. Soc. Rpt.* 230. 1894.

Originated with D. L. Bisel, Tonti, Illinois, in 1887; a seedling of Wilson. Imperfect. At this Station, plants numerous, productive, with good foliage; fruit-stems long, prostrate; fruit medium to large, round-conic, light red, firm, subacid; fair; midseason.

Bishop Orange. 1. Downing *Fr. Trees Am.* 526. 1847.

Bishop's Seedling. 2. *Trans. Lond. Hort. Soc.* **6**:172. 1826.

Raised in 1819 from seed of Hudson Bay by Thomas Bishop, gardener to Col. Robert Smith, Methven Castle, Perthshire, England. Grown somewhat in this country for its handsome, high quality fruit. Imperfect. Fruit large, regular, conic, attractive light scarlet; flesh firm, highly flavored; late.

Bismarck. 1. *Ark. Sta. Bul.* **48**:128. 1897. 2. Ont. Dept. Agr. *Fr. Ont.* 303. 1914.

A cross between Bubach and Van Deman, raised by J. C. Bauer, Judsonia, Arkansas; introduced about 1895. The fruit is similar to Bubach but smaller in size and lighter in color. Perfect. Plants numerous, vigorous, very productive; fruit large, round-conic, crimson; flesh pink, firm, sweet; very good; late midseason.

Bittner Early. 1. *Ohio Sta. Bul.* **236**:216. 1912.

Originated with George Bittner, Milan, Ohio; introduced in 1897. Perfect. Plants few; fruit small, short-conic, dark red, colors unevenly; flesh red to white, firm, juicy, mild; good; early.

Bittner Late. 1. *Ohio Sta. Bul.* **236**:217. 1912.

Originated with George Bittner, Milan, Ohio; introduced about 1907. Imperfect. Plants medium in number; fruit large, blunt-conic to wedge-shape, light attractive red; flesh light red, firm, juicy, subacid; good; midseason.

Bixler. 1. *Mich. Sta. Bul.* **130**:49. 1896.

Originated with C. G. Bixler, Three Rivers, Michigan; introduced about 1896. Perfect. Plants numerous, vigorous; fruit large, long-conic, light scarlet; flesh light, firm; good; midseason.

Black Beauty. 1. *N. J. Hort. Soc. Rpt.* 48. 1911. 2. *N. Y. Sta. Bul.* **401**:173. 1915.

Originated by H. J. Schild, Ionia, Michigan, in 1905; a cross between Dawn and one of his seedlings, No. 19, the parentage of which was Dawn by Ionia. Imperfect. As grown here, plants of medium size and vigor, productive, healthy; fruit-stems short, thick; fruit medium to large, wedge, necked, glossy dark red, very juicy, firm, tart, highly flavored; very good; early.

Black Defiance. 1. *Am. Pom. Soc. Rpt.* 108. 1869.

A cross between Green Prolific and Triomphe, originated about 1860 by E. W. Durand, Irvington, New Jersey. This variety was popular in the gardens of amateurs for many years. The American Pomological Society placed Black Defiance in its catalog in 1873, and removed it in 1897. Perfect. Plants few, vigorous, productive in heavy soils; fruit large, roundish conic, regular, dark crimson; flesh dark red, firm, juicy, sprightly; very good; early.

Black Giant. 1. *N. J. Hort. Soc. Rpt.* 7. 1878.

Raised by E. W. Durand, Irvington, New Jersey; introduced about 1875. Perfect, Plants numerous, vigorous, unproductive in matted rows; fruit large, irregular round-conic. very dark crimson; flesh dark red, medium firm; good.

Black Prince. 1. *Trans. Lond. Hort. Soc.* **6**:203. 1826. 2. *Horticulturist* **1**:167, fig. 47. 1846–47.

Raised from seed in 1820 by John Wilmot, Isleworth, England. About 1841 it was imported to America where it was widely grown for fifteen years when it was displaced by Wilson. It is the parent of a number of American varieties, of which Wilson is supposed to be one. Imperfect. Plants medium in number, hardy, vigorous and productive; fruit large, roundish, regular, very dark glossy crimson; flesh dark crimson, firm, rich, highly flavored; midseason.

Black Prince (of Cuthill). 1. *Gard. Chron.* 483. 1849. 2. Bunyard *Cat.* 67. 1923.

Raised and introduced by a Mr. Cuthill, Camberwell, England, about 1837. Imported into this country about 1848. It is valued in England for preserving. Plants vigorous, productive; fruit of medium size, long-conic, dark crimson; flesh scarlet, acid; good; very early.

Blaine. 1. *N. Y. Sta. Bul.* **309**:517. 1908.

A chance seedling found in 1902 by J. W. Blaine, Polk City, Iowa. It is thought to be a cross between Beder Wood and Lovett. Semi-perfect to perfect. On the Station grounds, plants numerous, vigorous, injured by mildew, unproductive; fruit-stems long, thick, erect; fruit large to medium, retaining its size, round-conic, glossy light red, very firm, pleasantly acid, well flavored; very good; late.

Bliss. 1. *Am. Pom. Soc. Rpt.* 209. 1922. 2. *N. Y. Sta. Bul.* **497**:17. 1923.

After a thorough test at this Station for several years, Bliss was recommended in 1922 to growers who want a late-midseason strawberry for home or market. The berries are large, handsome, bright red, glossy, uniform in size, shape, and color, and of exceedingly good quality. The flesh is well colored to the center and is sweet and rich and yet sprightly. The plants surpass most of the garden associates of this variety in resistance to drouth and are at the same time very vigorous, healthy and productive. Bliss originated at this Station as a cross between Chesapeake and Atkins Continuity, the seed of which was borne in 1911; introduced in 1923 by the New York Fruit Testing Association.

Perfect. Plants medium to numerous, vigorous, healthy, productive; leaves thick, variable in color. Flowers late midseason, large; petals 5–7, large; stamens numerous; receptacle medium in size. Fruit late midseason; fruit-stems long, thick, semi-erect; pedicels long, slender; calyx flat, well colored; sepals short, broad; berries large, plump, blunt-conic to blunt-wedge; apex slightly pointed; color bright red, very glossy; seeds variable in position; flesh well colored to the center, very juicy, firm, mild, sweet or pleasantly sprightly, highly flavored; good to very good in quality.

Blizzard. 1. *Ore. Bien. Crop Pest & Hort. Rpt.* 58. 1915.

Introduced in 1909 by the originator, C. F. Gardner, Osage, Iowa. Perfect. Plants few, lacking in vigor and productivity; fruit small, roundish conic, dark red; flesh medium red, soft, acid; good; late midseason.

Blonde. 1. *N. Y. Sta. Bul.* **91**:190. 1895.

Originated in 1890 as a supposed seedling of Haverland, with Granville Cowing, Muncie, Indiana. Perfect. In the Station beds, plants numerous, vigorous, moderately productive; fruit medium to large, round-conic, pale red; flesh pale red, acid; poor; late.

Bobolink. 1. *Mich. Sta. Bul.* **195**:79. 1902.

A chance seedling which originated with Myer & Son, Bridgeville, Delaware, who introduced it about 1900. Perfect. Plants vigorous, unproductive; leaves numerous, large; fruit large, irregular conic, light crimson, soft, pleasing; early.

Bomba. 1. *Rural N. Y.* **45**:461. 1886.

Originated in 1880 with William Parry, Parry, New Jersey, as a seedling of Crimson Cluster. Perfect. Plants at this Station vigorous, few, very productive; fruit large,

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round-conic, very dark red, dull; flesh dark, distinctly veined, firm, acid; very good; early, season long.

Bonanza. 1. *Rural N. Y.* **44**:463, fig. 288. 1885.

Pineapple. 2. *N. Y. Sta. Rpt.* 305. 1889.

Originated about 1880 with Henry Young, Ada, Ohio. This variety was first sent out as Bonanza, but was later reintroduced as Pineapple, under which name it has been more widely disseminated. Perfect. Plants medium in number; fruit above medium in size, irregular roundish to wedge-shape, with long neck, scarlet; flesh light red, soft, salvy with a banana flavor, acid; good; midseason.

Boquet. 1. *Am. Pom. Soc. Rpt.* 209. 1922. 2. *N. Y. Sta. Bul.* **497**:18, Pl. 1923.

The berries of Boquet are large, blunt-conic, and borne in compact clusters at the ends of the fruit-stems. The color is a uniform light red, and the flesh is well colored to the center. The fruits are large, sweet, refreshing and much above the average for their season. The crop ripens midway between Beacon and Bliss, early and late sorts sent out by this Station. The fruits ship and keep well. The plants are vigorous, productive, healthy, withstand drouths but unfortunately do not develop as many runners as growers like for rapid propagation. This is a cross between Chesapeake and Pan American made at this Station, the seeds being borne in 1911; introduced by the New York State Fruit Testing Association in 1923.

Perfect. Plants variable in number, vigorous, healthy, yielding fair to good crops; leaves large, thick, dark green, rugose, dull. Flowers late midseason, large; petals 6–8; stamens numerous; pistils tinged red; receptacle large. Fruit early midseason; fruit-stems numerous, short, thick, semi-erect, bearing fruit in dense clusters; pedicels short, thick; calyx small, variable in position, well colored; sepals short; berries very large, chunky, blunt-wedge to blunt-conic, the surface smooth or but faintly furrowed; apex very blunt, obtuse; color light red, glossy; seeds numerous, raised; flesh well colored to the center, juicy, very firm, subacid, pleasantly flavored; quality good.

Boston Pine. 1. *Mag. Hort.* **11**:290, fig. 16. 1845. 2. Hovey *Fr. Am.* **1**:27, Pl. 1852.

Bartlett. 3. *Mag. Hort.* **28**:446. 1862.

Raised in 1834 by C. M. Hovey, Boston, Massachusetts, from mixed seed, and was thought to be a cross between Grove End Scarlet and Keens Seedling. It was introduced in 1845. It was much grown around Boston from 1850 to 1865 as a pollinizer of Hovey. The American Pomological Society placed Boston Pine in its catalog in 1852, and removed it in 1879. Perfect. Plants numerous, very vigorous, hardy and productive; leaves large, pale dull green; fruit very large, roundish or slightly conic, regular, bright dark red; flesh pale scarlet, fine grained, firm, very juicy, rich; very good; early.

Boston Prize. 1. *Ohio Sta. Bul.* **186**:4. 1907.

Originated in North Carolina; introduced about 1900. Imperfect. Plants few, vigorous, moderately productive; fruit of medium size, long-conic, sometimes wedge-shape, light crimson; flesh pink, medium firm, subacid; good; midseason.

Bostonian. 1. *N. Y. Sta. Bul.* **91**:190. 1895.

Originated with B. F. Lincoln, West Hingham, Massachusetts; introduced about 1894. Perfect. At this Station, plants vigorous, numerous, medium productive; fruit-stems good; fruit of medium size, necked, round-conic, dark red, soft; fair; medium early.

Boudinot. 1. *Gard. Mon.* **9**:248. 1867. 2. Downing *Fr. Trees Am.* 980. 1869.

Raised from seed of Wilson by Dr. H. Boudinot, Alexandria, Ohio, about 1862. Perfect. Plants numerous, productive; fruit large, roundish conic, scarlet; flesh light red, firm, subacid; good; early.

Bouncer. 1. *Rural N. Y.* **55**:434, 498. 1896. 2. *N. Y. Sta. Bul.* **147**:184. 1898.

Originated with a Mr. Ball of Connecticut; introduced without name in 1895 by G. H. & J. H. Hale, South Glastonbury, Connecticut; named Bouncer the following year. Perfect. Plants numerous, vigorous, medium productive; fruit-stems long, erect; fruit large, irregular roundish, dark scarlet; flesh light, firm; fair to good; midseason.

Bountiful. 1. *N. Y. Sta. Bul.* **309**:517. 1908.

Raised in 1899 by J. E. Kuhns, Cliffwood, New Jersey, as a supposed cross between Glen Mary and Clyde. Perfect. As grown here, plants numerous, vigorous, attacked by leaf-spot, medium to productive; fruit large to medium, retains size well, round-conic, dark red, firm, mildly acid; good; midseason.

Bowman. 1. *N. Y. Sta. Bul.* **44**:142. 1892.

Originated with Mark T. Thompson, Cleveland, Ohio; introduced about 1890. Perfect. On the Station grounds, plants stocky; leaves large, dark green; fruit-stems short, stiff; fruit medium to large, obtuse-conic, light red, soft; very good; medium early.

Bradley. 1. *N. Y. Sta. Bul.* **309**:518. 1908.

Originated at Cobden, Illinois, by J. H. Bradley, about 1896. A seedling of Crescent open to chance pollination by Tennessee and Crystal City. Perfect. Plants at this Station medium in number, vigorous, healthy, very productive; fruit-stems long, slender, semi-erect; fruit large to medium, round-conic to wedge, dull red, medium to firm, acid, inferior in flavor; poor; midseason.

Brandywine. 1. *N. Y. Sta. Bul.* **76**:432. 1894. 2. *U. S. D. A. Pom. Rpt.* 27. 1894. 3. *Va. Sta. Tech. Bul.* **11**:14, fig. 1. 1916.

This old sort, at one time much grown in New York, is now being discarded because the plants are very susceptible to leaf diseases. It is still a leading variety about Los Angeles, California, where the berries ripen from early spring to late autumn. In New York fruit and plants suffer much from drouth. Brandywine is a very ornamental strawberry with its dark green foliage, large blossoms and handsome fruits. It is still grown in home gardens in the Hudson River Valley. This variety originated with E. C. Ingram, West Chester, Pennsylvania, in 1889; introduced in 1895. Its parentage is supposed to be Glendale x Cumberland. In 1899 the American Pomological Society placed the name of this sort in its list of recommended fruits.

Perfect. Plants medium in number, vigorous, susceptible to leaf-spot, productive; leaves large, thick, dark green, dull. Flowers midseason, large; petals 6–8, large, overlapping; stamens numerous; receptacle large. Fruit late; fruit-stems long, erect, carried

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well above the foliage, thick; pedicels long; calyx very large, often easily detached, flat or slightly raised, leafy, frequently discolored and unattractive, quickly changing from a pleasing green to a sickly greenish brown; sepals long, broad; berries large, usually retain size well, wedge to broadly round-conic, often quite wide at the base; apex obtuse; color dark red at first but quickly becoming dull and less attractive; seeds raised, yellowish; flesh dark salmon-red, juicy, firm, brisk subacid, well colored to the center, which is often hollow; quality good to very good.

Bright Ida. 1. *Mich. Hort. Soc. Rpt.* 165. 1882.

Originated about 1872 by Charles Arnold, Paris, Ontario, as a seedling from a seedling of a cross between Doctor Nicaise and Wilson. Perfect. Plants numerous, vigorous and very productive; fruit large, round-conic, bright red, moderately firm, juicy, mild; good; midseason.

Brighton Pine. 1. *Mag. Hort.* **21**:320. 1855.

A seedling of Boston Pine raised by John C. Scott, Brighton, Massachusetts; introduced in 1856. Grown near Boston about 1865. The American Pomological Society placed this variety in its catalog in 1862, and removed it in 1871. Perfect. Plants hardy and productive; fruit very similar to Boston Pine but darker in color; early.

Brilliant. 1. *Horticulturist* **3**:70. 1848–49.

Raised about 1845 by William Prince, Flushing, New York, as a seedling of Crimson Cone. Perfect. Plants very vigorous and productive; fruit large, conic, dark crimson; excellent.

British Queen. 1. *Gard. Chron.* 427, 449. 1841.

Myatt's British Queen. 2. Downing *Fr. Trees Am.* 531. 1845.

This old English variety was raised by a Mr. Myatt, Dextford, England, who introduced it in 1841. Since that time it has been a leading sort in England. It was introduced into this country about 1842 but was never widely grown. The name was placed in the catalog of the American Pomological Society in 1862 and removed in 1871. Perfect. Plants medium in number, vigorous, rather tender, require high cultivation, productive; fruit very large, roundish conic to wedge-shape, glossy, scarlet; flesh light red, firm, juicy, rich; excellent; early.

Brooklyn Scarlet. 1. *Gen. Farmer* **24**:230, fig. 1863.

Raised from seed of Peabody Seedling in 1859 by A. S. Fuller, Ridgewood, New Jersey. Introduced in 1863 by the *New York Tribune* and for a time was popular as a home garden variety. Perfect. Plants few, dwarfish, hardy, vigorous and productive; fruit medium to large, regular, conic, slightly necked, bright scarlet; flesh soft, sweet; very good; very early.

Brownie. 1. *Mich. Sta. Bul.* **189**:113. 1901.

A cross between Cumberland and Black Defiance originated by LeRoy M. Brown & Son, Clyde, Ohio; introduced in 1899. Perfect. Plants few, vigorous, productive; fruit medium to large, round-conic, bright red; flesh light red, firm; good; midseason.

Brunette. 1. *Ann. Hort.* 210. 1891. 2. *N. Y. Sta. Bul.* **91**:190. 1895.

Originated in 1886 by Granville Cowing, Muncie, Indiana. It has been valuable in the home garden. Added to the American Pomological Society catalog in 1901, where it remained in the last catalog in 1909. Perfect. At this Station, plants numerous, vigorous, moderately productive, with good fruit-stems; fruit medium in size, round-conic, dark red, firm, sweet; good; midseason.

Bryan. 1. *Mich. Sta. Bul.* **195**:79. 1902.

W. J. Bryan. 2. *Am. Gard.* **22**:618. 1901.

Originated in 1890 by J. M. Green, Salem, Indiana; introduced in 1900. Perfect. Plants few, lacking in vigor and productivity; fruit medium in size, oblate-conic, bright crimson; flesh light red, firm; good; midseason.

Bryant. 1. *N. Y. Sta. Bul.* **91**:190. 1895.

Perkins No. 2. 2. *N. Y. Sta. Bul.* **76**:436. 1894.

A chance seedling of Crescent or Sharpless, originating in 1885 with L. J. Bryant, Newark, New York; introduced about 1891 as Eureka, but when it was discovered that another variety bore that name, it was designated Perkins No. 2 and in 1895 renamed Bryant. Perfect. As grown here, plants medium vigorous, numerous, unproductive, with good fruit-stems; fruit of medium size, round-conic, bright red, firm, with dark red flesh; fair; midseason to late.

Bubach. 1. *U. S. D. A. Rpt.* 419. 1890. 2. *Va. Sta. Tech. Bul.* **11**:15, fig. 2. 1916.

Western Union. 3. *Ohio Hort. Soc. Rpt.* 152. 1886–7.

Bubach No. 5. 4. *Rural N. Y.* **47**:195, 460. 1888.

A quarter of a century ago Bubach was a standard sort in New York, but was discarded chiefly because the plants are not good plant makers, the berries are soft, irregular in shape, and do not ship well. The plants are very productive on heavy soils. The berries are large, handsome, of very good quality and hold their color well when canned. This variety was originated by J. G. Bubach, Princeton, Illinois, in 1882. It was introduced about 1886 as Bubach No. 5 to distinguish it from several other seedlings originated by Mr. Bubach. In 1889 the variety was added to the fruit list of the American Pomological Society. Bubach, Jr., introduced about 1901 and Improved Bubach introduced in 1911 do not differ materially from this Bubach.

Imperfect. Plants few, vigorous, low-growing and spreading, healthy, productive; leaves large, thick, dark green, glossy. Flowers early midseason, large; petals 5–6, small; receptacle small. Fruit midseason; fruit-stems short, weak, prostrate; pedicels short; calyx large, variable in position, well colored, adherent; sepals broad; berries large to very large, retain good size, uniform, irregular round-conic to wedge, the larger berries furrowed; apex blunt; color glossy, medium to light red, attractive; seeds large, even with the surface; flesh pale red at the center, juicy, rather soft, mildly subacid; quality fair to good.

Buist Prize. 1. *Cultivator* **3**:349. 1846.

Originated in 1842 by Robert Buist, Philadelphia, Pennsylvania; introduced in 1846. Popular near Philadelphia about 1850. Perfect. Fruit large, round-conic, scarlet, soft; good; midseason.

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Bull Moose. 1. *N. Y. Sta. Bul.* **401**:173. 1915.

A cross between Sample and Glen Mary raised by T. C. Kevitt, Athenia, New Jersey, in 1901. Imperfect. In the Station beds, plants large, vigorous, healthy, moderately productive; fruit-stems long, thick, semi-erect; fruit large to medium, blunt-conic, dull light red, juicy, very firm, sweet; good; midseason.

Bun Special. 1. Baldwin *Cat.* 12. 1920.

A chance seedling which originated about 1910 with E. M. Buechly, Greenville, Ohio. Perfect. The fruit is of good size, attractive in appearance and of fine flavor but rather soft for shipping. Plants at this Station medium to numerous, vigorous, productive; leaves large, dark green; flowers midseason; fruit-stems thick, prostrate; calyx raised; seeds sunken; fruit large, plump, conic to wedge, glossy medium to dark red, juicy, variable in firmness, subacid or sprightly, highly flavored; good; early.

Burnett. 1. *Mich. Sta. Bul.* **163**:66. 1898.

Originated with Mark T. Thompson, Rio Vista, Virginia; introduced about 1896. Perfect. Plants medium in vigor and productivity; fruit large, round-conic, bright crimson; flesh dark red, firm; very good; midseason.

Burr.

Burr's Seedling. 1. *Cultivator* **4**:264. 1847. 2. Downing *Fr. Trees Am.* 673. 1857.

Raised by John Burr, Columbus, Ohio; introduced about 1836. Perfect. Plants vigorous, hardy and productive; fruit large, roundish conic, light scarlet; flesh tender, juicy, mild, pleasant; very good.

Burr New Pine. 1. *Cultivator* **4**:264. 1847.

A cross between Hovey and Burr raised in 1845 by John Burr, Columbus, Ohio. Its good quality made it a popular sort with amateurs, but it required high cultivation and good care. The American Pomological Society placed this variety in its list of fruits promising well in 1852, in its catalog in 1860 from which it was removed in 1871, replaced in 1877 and removed again at the next session in 1879. Imperfect. Plants medium in number and vigor, tender to extremes of heat and cold, productive; fruit of medium size, roundish conic, light crimson; flesh whitish pink, soft, very juicy, sweet, rich, aromatic; best; very early.

Bush Cluster. 1. *Rural N. Y.* **60**:493. 1901. 2. *Ohio Sta. Bul.* **146**:30. 1903.

Raised by J. A. Bauer, Judsonia, Arkansas, as a cross between Crescent and Charles Downing; introduced in 1899. A perfect-flowered sort has been grown under this name. Imperfect. Plants numerous, productive; fruit of the type of Crescent, medium to small, irregular round-conic, dark red; flesh light red, medium firm; good; midseason.

Bushel Basket. 1. *N. Y. St. Hort. Soc. Rpt.* 163. 1919. 2. *Am. Pom. Soc. Rpt.* 165. 1920.

A chance seedling discovered in an old strawberry bed in 1912 by E. C. Ercanbrach, Auburn, New York. It was first called Auburn, then Ercanbrach, under which name it received the Barry Medal of the New York State Horticultural Society. Later it was changed to Bushel Basket and introduced about 1920 by A. B. Katkamier, Macedon, New York. Perfect. At this Station, plants medium in number, vigorous, healthy, productive;

leaves large, light green; flowers midseason, large; fruit-stems erect; calyx large, raised, leafy, discolored; fruit large, oval, necked, dull light red, colors unevenly, medium juicy, very firm, sprightly, with inferior flavor; poor; late.

Buster. 1. *Can. Exp. Farm Bul.* **27**:20. 1897. 2. *N. Y. Sta. Bul.* **401**:174. 1915.

A cross between Bubach and Sharpless made by C. C. Stone, Moline, Illinois; first sent out in 1895. Imperfect. As grown here, plants very numerous, vigorous, healthy, very productive; fruit-stems thick, semi-erect; calyx much depressed; fruit large, furrowed, roundish, dull light red, colors unevenly, juicy, with a white center, bruises easily, subacid, lacks flavor; fair; midseason.

Buster Brown. 1. *Ohio Sta. Bul.* **236**:218. 1912.

Originated with J. W. Alt, Lancaster, Ohio, who introduced it in 1908. Perfect. Plants few, productive; foliage subject to leaf-spot; fruit medium to large, uniform, short wedge-shape, furrowed, red; flesh light, firm, subacid; excellent; midseason.

California. 1. *Peninsula Hort. Soc. Rpt.* 19. 1891. 2. *U. S. D. A. Pom. Rpt.* 265. 1892.

Originated in Caroline County, Maryland; brought to notice about 1889. Perfect. Plants few, lacking vigor and productivity; fruit large, long-conic, sometimes coxcombed, dark glossy crimson; flesh bright crimson, firm, juicy, subacid; good; midseason.

California (of New Jersey). 1. *Am. Pom. Soc. Rpt.* 290. 1921.

A cross between Glen Mary and Chesapeake, raised by T. C. Kevitt, Athenia, New Jersey; introduced in 1921 by William M. Hunt & Company, New York City. Semi-perfect. On the Station grounds, plants very few, medium in vigor, unproductive; fruit-stems short, thick, semi-erect; fruit large to medium, blunt-wedge to conic, glossy medium red, juicy, firm, sprightly; good; midseason.

Cameron.

Cameron Early. 1. *Mich. Sta. Bul.* **206**:51. 1903.

Originated with J. W. Cameron, East Rochester, Ohio; introduced in 1902. Perfect. Plants of medium number, very vigorous, unproductive; foliage very coarse, subject to rust; fruit medium in size, round-conic, regular, bright crimson; flesh light red, firm, acid; fair; early.

Cameronian. 1. *Ohio Sta. Bul.* **111**:No. 7, 212. 1890. 2. *N. Y. Sta. Bul.* **64**:5. 1894.

Originated with J. W. Cameron, East Rochester, Ohio; introduced in 1890. Perfect. In the Station beds, plants medium vigorous, few, moderately productive, with short fruit-stems; fruit medium to large, dark red, irregular in shape, firm; good; midseason.

Campbell. 1. *N. Y. Sta. Bul.* **447**:66. 1918.

Campbell's Early. 2. *N. J. Hort. Soc. Rpt.* 28. 1916.

This variety originated with James Campbell, Newport, New Jersey, in 1910; introduced in 1916 by W. B. Kille, Swedesboro, New Jersey. Perfect. Plants medium or above in number, vigor, and height, healthy, productive; fruit-stems short, thick, prostrate; pedicels long; berries of good size at the first pick under favorable conditions, otherwise smallish, dropping rapidly in size, wedge to conic, the smaller berries slightly necked, variable in color and glossiness, soon becoming dull and unattractive; flesh variable in color, pale

red or whitish at the center, juicy, firm, subacid or pleasantly sprightly; good only when well ripened; very early.

Canfield. 1. *Ohio Sta. Bul.* **236**:218. 1912.

Originated with T. B. Carlisle, Lisbon, Ohio; introduced about 1912. Imperfect. Plants numerous, vigorous, and productive; fruit of Haverland type, medium in size, conic, glossy red; flesh red, soft, juicy, mild; good; midseason.

Captain Jack. 1. *Gard. Mon.* **19**:304. 1877. 2. *N. Y. Sta. Bul.* **147**:185. 1898. *Burt.* 3. *Am. Gard.* **10**:260. 1889.

A chance seedling found by Samuel Miller, Bluffton, Missouri, on his farm about 1870. It soon became a standard sort, especially in the Rocky Mountain states. The plants are hardy, drouth resistant and produce an abundance of pollen, making them popular as pollinizers. Burt, which was introduced in 1890, said to have been found in a bed of Wilson and Colonel Cheney on the farm of a Miss Burt, Scriba, New York, proved identical with Captain Jack. The American Pomological Society added Captain Jack to its catalog in 1879, removed it in 1897, replaced it in 1901, where it remained in the last catalog in 1909. Perfect. Plants numerous, erect, vigorous, hardy, productive; fruit-stems prostrate; fruit of medium size, regular, round-conic, bright scarlet; flesh light red, very firm, acid; good; early midseason.

Cardinal. 1. *Rural N. Y.* **47**:195, fig. 66, 460. 1888. 2. *N. Y. Sta. Bul.* **24**:331. 1890.

Raised from seed of Prince in 1884 by P. M. Augur & Son, Middlefield, Connecticut. Perfect. On the Station grounds, plants weak, few, healthy, unproductive; fruit-stems erect; fruit medium in size, irregular in shape, bright red, soft, subacid; fair; midseason to late.

Cardinal (of Streator). 1. *U. S. D. A. Yearbook* 277, Pl. 38. 1903.

Discovered among a lot of chance seedlings in his garden by George J. Streator, Ganettsville, Ohio, in 1896. Promising as grown here. Imperfect. In the Station beds, plants numerous, vigorous, productive; fruit-stems long, stout; calyx leafy; fruit above medium to large, retains size well, round-conic, sometimes wedge, dark red, firm, juicy, mildly acid; good; midseason.

Carleton. 1. *Can. Exp. Farm Bul.* **62**:28. 1909.

Originated in 1888 by William Saunders, at the Central Experimental Farm, Ottawa, Canada. Imperfect. Plants numerous, very vigorous; foliage subject to rust; fruit of medium size, round-conic or wedge-conic, pale red; flesh bright red, medium firm, juicy, subacid; good; late midseason.

Carmi.

Carmi Beauty. 1. *Mich. Sta. Bul.* **195**:79. 1902.

A chance seedling which originated in 1890. Imperfect. Plants few, vigorous, hardy and productive; fruit large, round-conic, light red, medium firm; good; early midseason.

Carmichael. 1. *Ohio Sta. Rpt.* 247. 1887. 2. *N. Y. Sta. Bul.* **24**:331. 1890.

Originated with E. W. Reid, Bridgeport, Ohio; introduced about 1888. Has not proved of any value here. Imperfect. Plants at this Station weak, numerous, healthy, with dark green foliage; fruit medium in size, conic, light red, medium firm; fair; late.

Caroline. 1. *Mass. Hort. Soc. Rpt.* 147, 156. 1874.

Originated with J. B. Moore, Concord, Massachusetts; introduced about 1874. Perfect. Plants medium in number, vigorous; fruit large, roundish, irregular, glossy crimson; flesh scarlet, rich, sprightly; midseason.

Carrie. 1. *Rural N. Y.* **55**:598. 1896. 2. *N. Y. Sta. Bul.* **147**:185. 1898.

A seedling of Haverland, which originated with Mark T. Thompson, Rio Vista, Virginia; introduced about 1894. Added to the catalog of the American Pomological Society in 1889, where it remained in the last catalog in 1909. Imperfect. Plants medium in number, vigorous, and medium productive; fruit large, long-conic, bright scarlet; flesh light, medium firm, acid; good; late midseason.

Carrie Dumas. 1. *Ohio Sta. Bul.* **166**:71. 1905.

Imperfect. Plants medium in number and vigor; fruit small, conic, bright red; flesh light red, soft; fair; early midseason.

Carrie Silvers. 1. *N. Y. Sta. Bul.* **218**:196. 1902.

Originated in 1893 by J. H. Black, Son & Company, Hightstown, New Jersey, by crossing a seedling of Sharpless and Warfield with Parker Earle. This variety made an excellent showing at this Station. Imperfect. Plants medium to large, vigorous, healthy, productive; leaves often very large, dark green; flowers midseason; fruit-stems short, prostrate; calyx raised; seeds raised; fruit large, drops rapidly in size, elongated to round-conic, necked, glossy dark red, firm, with dark flesh, pleasantly acid, well flavored; good to very good; midseason.

Cassandra. 1. *Can. Exp. Farms Rpt.* 298. 1913.

Raised from open pollinated seed of Bubach at the Central Experimental Farm, Ottawa, Canada, in 1906. Semi-perfect. On the Station grounds, plants few, vigorous. very productive; fruit large, wedge to long-conic, light red, juicy, firm, pleasantly sprightly; good; season variable.

Catherine. 1. *Ohio Sta. Bul.* **178**:48. 1906.

Originated with J. F. Cannon, Sussex County, Delaware; introduced about 1903. Imperfect. Plants medium in number and vigor, productive; fruit medium to small, short-conic, bright red; flesh red, medium firm, subacid; fair; early.

Centennial Favorite. 1. *N. J. Hort. Soc. Rpt.* 7. 1878.

Raised by E. W. Durand, Irvington, New Jersey; introduced in 1876. Perfect. Plants numerous; fruit large, irregular round-conic, light crimson; flesh medium red, medium firm, sweet; very good; late.

Cetywayo. 1. *W. N. Y. Hort. Soc. Rpt.* 120. 1880.

Raised by A. J. Caywood & Son, Marlboro, New York; introduced about 1880. Imperfect. Plants medium in vigor, subject to sun injury, productive; fruit large, irregular, roundish, frequently coxcombed, dark crimson; flesh firm, very juicy, acid.

Chairs Favorite. 1. *N. Y. Sta. Bul.* **64**:5. 1894.

Chairs Early. 2. *Rural N. Y.* **55**:514. 1896.

Originated with Franklin Chairs, Anne Arundel County, Maryland. Perfect. In

the Station beds, plants vigorous, healthy, numerous, unproductive, with good fruit-stems; fruit medium to large, round-conic, light red, soft; good; midseason.

Challenge. 1. *Am. Gard.* **20**:510. 1899. 2. *N. Y. Sta. Bul.* **276**:58. 1906.

Originated about 1884 with J. R. Peck, Breckenridge, Missouri; of little value at this Station. Perfect. Plants few, medium vigorous, unproductive, injured by leaf-spot; fruit-stems short, stout; fruit variable in size and shape, unattractive dull red, medium firm, juicy, inferior in flavor; poor; midseason.

Champion. 1. Downing *Fr. Trees Am.* 982. 1869.

Originated with J. C. Neff, Carlisle, Pennsylvania, about 1860; included in the American Pomological Society's fruit catalog from 1879 to 1909. Once a popular commercial sort in the East, it is now largely displaced by Windsor, one of its seedlings closely resembling it. Berries large, round-conic, light crimson, firm; good; midseason.

Champion (of Lubke). 1. Weston *Cat.* 12. 1922.

Originated as a chance seedling about 1915 by Edward L. Lubke, New Buffalo, Michigan. Perfect. At this Station, plants medium to few, vigorous, productive; autumn-fruiting; flowers small, early; fruit of medium size, uniform, blunt-conic to wedge, necked, glossy medium red; seeds raised; flesh medium juicy, firm, subacid; fair; very early; resembles Progressive.

Champion Klondike. 1. *Va. Sta. Tech. Bul.* **11**:18. 1916.

In 1912, Louis Hubach, Judsonia, Arkansas, originated this sort as a cross between Sherman and Klondike. Perfect. As grown here, plants very numerous, vigorous, very productive, attacked by mildew; leaves dark green; flowers midseason; fruit above medium in size, regular, round-conic, glossy light red; seeds sunken; flesh very juicy, very firm, decidedly sprightly; good; early to midseason.

Charles I. 1. *N. Y. Sta. Bul.* **447**:67. 1918.

A chance seedling found in the woods by George Hann, Bridgman, Michigan, about 1905. Perfect. In the Station beds, plants numerous, medium in vigor, severely injured by leaf-spot, productive; fruit-stems very short, thick, much prostrate; fruit large, retains size well, very blunt-conic, characteristically light red, dull, juicy, soft, with white flesh; mild; poor; medium early.

Charles Downing. 1. *Mag. Hort.* **33**:299. 1867. 2. *N. Y. Sta. Bul.* **24**:331. 1890. *Downing.* 3. *Am. Pom. Soc. Cat.* 28. 1897.

Raised from seed of Downer Prolific in 1860 by J. S. Downer, Fairview, Kentucky. This variety was a leading sort between 1870 and 1890. Added to the catalog of the American Pomological Society in 1869, where it remained in the last catalog in 1909. Perfect. On the Station grounds, plants very vigorous, medium in number, attacked by leaf-spot, variable in yield; fruit-stems long, slender; fruit medium to large, conic, bright red; flesh light red, firm, mildly subacid; good; season from early to late.

Charles Newman. 1. *Md. Sta. Bul.* **160**:208. 1911.

A cross between Aroma and Excelsior raised by Louis Hubach, Judsonia, Arkansas; introduced about 1909. Perfect. Plants numerous, small, vigorous; fruit-stems erect;

fruit medium in size, roundish, blunt, irregular, dark crimson; flesh red, firm, mildly subacid; fair; early.

Charlie. 1. *N. Y. Sta. Bul.* **91**:191. 1895.

Raised from mixed seed by Mark T. Thompson, Rio Vista, Virginia; introduced in 1894. Imperfect. Plants at this Station vigorous, numerous, medium productive, with long fruit-stems; fruit of medium size, attractive red, round-conic, firm; fair; midseason.

Chaska. 1. *Minn. Hort. Soc. Rpt.* 226. 1921.

A cross between a seedling of Dunlap and Pocomoke, and Brandywine, raised in 1911 at the Minnesota Fruit Breeding Farm, Excelsior, Minnesota. Perfect. At this Station, plants numerous, vigorous, productive, injured by leaf-spot; leaves large; flowers midseason, small; fruit-stems very long, thick, erect; calyx large, leafy, raised; seeds sunken; fruit large to medium, blunt-conic to wedge, glossy medium red, juicy, firm, pleasantly sprightly; good to very good; midseason.

Chellie. 1. *Ohio Sta. Bul.* **154**:34. 1904.

Originated in 1896 with Nathan Barton, Camden, New Jersey. Perfect. Plants few, medium in vigor and productivity; fruit very large, very regular, conic, bright attractive crimson; flesh pink, moderately firm; excellent; midseason.

Chenango. 1. *Mich. Sta. Bul.* **176**:7. 1899.

Originated with C. W. Graham, Afton, New York; introduced about 1897. Perfect. Plants weak; fruit of medium size, round-conic, light scarlet; flesh light red, juicy, acid; midseason.

Cherokee. 1. *Ann. Hort.* 134. 1893.

Introduced in 1893 by Julius Schnadelbach, Grand Bay, Alabama. Perfect. Plants numerous, vigorous and healthy; fruit medium in size, round-conic, many imperfect, dark crimson, firm; good; midseason.

Chesapeake. 1. *Ohio Sta. Bul.* **186**:5, fig. 6. 1907. 2. *N. Y. Sta. Bul.* **364**:194. 1913.

This variety has rapidly attained high favor in the states along the Atlantic seaboard. Its most distinctive characters are vigor and healthiness of plant, and beauty and high quality of fruit. The surface of the berries is seldom broken by furrows or irregularities, and the fruits are unusually plump and glossy. The dark red flesh is aromatic and mildly acid. The plants do not multiply as rapidly as those of most varieties and should be set somewhat thickly. The variety is desirable also because there is little danger of frost since the plants bloom late, a valuable consideration in many localities. This variety was originated by J. W. Parks, Nanticoke, Maryland, about 1904; introduced two years later by W. F. Allen, Salisbury, Maryland. In 1909 the American Pomological Society added the variety to its list of recommended fruits.

Perfect. Plants few, vigorous, tall, usually healthy, productive; leaves above medium in size, wide, thick, dark green, glossy, rugose. Flowers late, large; petals 5–7; stamens medium in number; receptacle large. Fruit midseason or later; fruit-stems thick, semi-erect; pedicels long; calyx large, leafy, slightly depressed; sepals broad; berries large, dropping in size as the season advances, round-conic to wedge, the surface usually plump and unbroken; apex conical, seedy in the smaller berries; color beautiful glossy scarlet; seeds

CHESAPEAKE

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conspicuous, often markedly raised; flesh variable in color, very firm, juicy, mildly acid, pleasantly flavored; very good in quality.

Chesapeake Wonder. 1. *Am. Pom. Soc. Rpt.* 165. 1920.

Pride of New York. 2. *Ibid.* 169. 1920.

Introduced a few years ago by the Moore Seed Company, Philadelphia. Plants vigorous; berries very large, heart-shaped, with pointed tip, bright lively crimson; seeds prominent.

Chester. 1. *N. Y. Sta. Bul.* **447**:67. 1918.

A chance seedling of unknown parentage found in a yard in Chester, Pennsylvania, in 1912. Plants were sold locally in 1915. Perfect. As grown here, plants intermediate in number and vigor, healthy, very productive; fruit-stems thick, erect; fruit large, irregularly roundish to almost oblate, much furrowed, medium to dark red, unattractive, with dark red flesh, medium juicy, very firm, fig-like in type, sweet; good; midseason.

Cheyenne. 1. *N. Y. Sta. Bul.* **64**:5. 1894.

Originated with James Stayman, Leavenworth, Kansas; introduced about 1892. Imperfect. On the Station grounds, plants few, unproductive, with good foliage and short fruit-stems; fruit medium to large, variable in shape, with a prominent neck, attractive red, firm; very good; late.

Childs. 1. Childs *Cat.* 142. 1893.

Introduced in 1892 by John Lewis Childs, Floral Park, New York. Perfect. The stock as sent out was mixed, some of the plants being Iowa Beauty and others Gandy. The true Childs is dark crimson, sweet; good; early.

Chipman. 1. *N. Y. Sta. Bul.* **309**:520. 1908.

A chance seedling found in a plantation of Bubach and Tennessee about 1901 by a Mr. Chipman at Lincoln, Delaware. A leading sort in the southern part of the Chesapeake Peninsula. Perfect. In the Station beds, plants very numerous, healthy, productive; fruit-stems long, thick, prostrate; fruit large to medium, wedge to round-conic, sometimes elongated, surface irregular, attractive light and dark red, becoming dull, medium in firmness and juiciness, mildly acid; fair to good; early.

Chippewa. 1. *Ohio Sta. Bul.* **236**:219. 1912.

A seedling of Haverland, which originated with E. M. Buechly, Greenville, Ohio; introduced about 1909. Imperfect. Plants medium in vigor; fruit of medium size, conic to wedge-shape, bright crimson; flesh scarlet, medium firm; fair; early midseason.

Chippewa (of Sibert). 1. *Am. Pom. Soc. Rpt.* 165. 1920.

A cross between Black Beauty and Pan American raised by A. B. Sibert, Rochester, Indiana; introduced by H. J. Schild, Ionia, Michigan in 1911. Imperfect. Fruit large, dark red; fine quality.

Chorlton. 1. Downing *Fr. Trees Am.* 982. 1869.

Chorlton Prolific. 2. *Horticulturist* **14**:466, fig. 1859.

Originated in 1852 by William Chorlton, New Brighton, New York, as a cross between Iowa and Burr New Pine. Perfect. Plants numerous, vigorous and productive; fruit large, roundish, necked, scarlet; flesh light scarlet, soft, acid; very good; early.

Cinderella. 1. *Cult. & Count. Gent.* **44**:470. 1879.

Sent out in 1876 by Oscar Felton, Mechanicsburg, New Jersey. Perfect. Plants medium in number, vigorous and productive; fruit large, conic, often necked, bright scarlet; flesh light red, medium firm; very good; early.

Clara. 1. *N. Y. Sta. Bul.* **401**:174. 1915.

A cross between Sample and Belt, raised in 1903 by J. E. Kuhns, Cliffwood, New Jersey. Worthy of trial as grown at this Station. Perfect. Plants numerous, healthy, medium productive; fruit-stems thick, prostrate; fruit large, furrowed, wedge to irregular conic, glossy dark red, juicy, firm, sprightly; good to very good; midseason.

Clarence. 1. *N. Y. Sta. Bul.* **127**:331. 1897.

Thompson No. 101. 2. *N. Y. Sta. Bul.* **109**:237. 1896.

Originated with Mark T. Thompson, Rio Vista, Virginia; introduced about 1896. Perfect. Plants numerous, productive; fruit medium in size, round-conic, scarlet; flesh firm; good; late.

Clarence (of Black). 1. *Va. Sta. Tech. Bul.* **11**:19. 1916.

Originated with J. H. Black, Son & Company, Hightstown, New Jersey; introduced about 1899. Perfect. Fruit large, bright crimson, firm, acid; midseason.

Clark. 1. *Va. Sta. Tech. Bul.* **11**:20. 1916.

Clark's Early. 2. *Gard. & For.* **6**:335. 1893. 3. *N. Y. Sta. Bul.* **64**:6. 1894.

Early Idaho. 4. *Ore. Sta. Bul.* **29**:65. 1894.

Hood River. 5. *Mich. Sta. Bul.* **195**:77. 1902.

Clark's Seedling. 6. *Ohio Sta. Bul.* **364**:75. 1923.

This sort originated with Fred E. Clark, Portland, Oregon, about 1875; introduced in 1880. It is supposed to be a seedling of Wilson. In 1899 the variety was added to the American Pomological Society catalog under the name Hood River by which it is often known on the Pacific Coast. In Oregon it has long been a favorite for the market because of its firm attractive fruits. Perfect. Plants above medium in size, vigorous, healthy, erect, medium to numerous, lack somewhat in yield; fruit-stems variable in length, stout, upright, holding up the fruit well; fruit globose or globose-conic, regular, dark rich red; flesh very firm, dark red throughout, briskly subacid; quality averages medium although variable; midseason.

Class A. 1. *Ind. Sta. Bul.* **200**:10. 1917.

Sent out by C. Nation, Gilead, Indiana. Perfect. Plants numerous, vigorous, medium productive; fruit medium in size, conic, regular, dark red, with some green tips; flesh dark red, medium firm, subacid; fair; early midseason.

Class B. 1. *Ind. Sta. Bul.* **200**:10. 1917.

Sent out by C. Nation, Gilead, Indiana. Imperfect. Plants medium in number, vigor and productivity; fruit large, irregular, conic, wedge to coxcomb, medium red; flesh pink, firm; fair; late midseason.

Cleveland. 1. Elliott *Fr. Book* 457. 1858.

Raised from seed in 1849 by Mrs. D. H. Lamb, Cleveland, Ohio; fruit large, varying from coxcomb to conic, irregular, dark crimson; flesh firm, with pineapple flavor, rich; very good.

Clifton. 1. *N. Y. Sta. Bul.* **336**:53. 1911.

A chance seedling found in a trial bed of several varieties by J. K. Losee, Elnora, New York, in 1905. Perfect. At this Station, plants of medium number and size, low growing, healthy, very productive; fruit-stems short, thick, prostrate; fruit variable in size, conic or wedge, dull medium red, juicy, firm, with a hard center, aromatic, tart; good; midseason.

Climax. 1. *Rural N. Y.* **61**:431. 1902. 2. *N. Y. Sta. Bul.* **276**:69. 1906.

A cross between Bubach and Hoffman, originated with and introduced by H. W. Graham, Wetipquin, Maryland. Once popular in Maryland and New Jersey. Added to the last catalog of the American Pomological Society in 1909. Perfect. Station plants medium in number and yield, vigorous; fruit above medium to large, drops in size, round-conic to blunt-wedge, dull dark red, firm, juicy, mildly acid; good; medium early.

Clingto. 1. *Mich. Sta. Bul.* **80**:6. 1892.

Originated with T. & S. B. McMillan, Columbiana County, Ohio; introduced in 1889. Perfect. Plants numerous, lacking in vigor and productivity; fruit medium in size, round-conic, light crimson; flesh light red, medium firm; good; late midseason.

Clinton. 1. Downing *Fr. Trees Am.* 982. 1869.

Raised by Elias Camfield, Newark, New Jersey; introduced about 1867. Perfect. Plants vigorous and productive; fruit large, roundish, crimson; flesh firm, juicy, rich, sprightly subacid; early.

Clinton (of Iowa). 1. *Mich. Sta. Bul.* **81**:6. 1892.

Originated in Iowa. Perfect. Plants vigorous, unproductive; fruit medium in size, round-conic, dark scarlet, medium firm; good; midseason.

Cloud. 1. *N. Y. Sta. Bul.* **24**:331. 1890.

A cross between Crescent and Wilson raised in 1886 by R. L. Cloud, Independence, Louisiana, which was much grown in the Gulf States between 1890 and 1900. Cloud was added to the catalog of the American Pomological Society in 1899, and remained in the last catalog in 1909. Imperfect. As grown here, plants very numerous, vigorous, productive; fruit large, round-conic, dark red, very firm, brisk and sprightly; fair; midseason.

Clyde. 1. *N. Y. Sta. Bul.* **64**:6. 1894.

A seedling of Cyclone raised by James Stayman, Leavenworth, Kansas, who introduced it in 1890. At one time Clyde was widely grown for home use and local markets; it is now superseded by better sorts. The plants are very productive, and a strong moist soil is needed to carry out all the crop. Added to the catalog of the American Pomological Society in 1899, and remained in the last catalog in 1909. Perfect. Plants numerous, vigorous, very productive; foliage rusts badly in some places; fruit medium to large, regular, round-conic, light scarlet; flesh light, medium firm, subacid; good; early midseason.

Cobden King. 1. *Am. Gard.* **17**:627. 1896.

A seedling of Warfield which originated with John McCaffrey, Cobden, Illinois; introduced about 1895. Perfect. Plants numerous and vigorous; fruit above medium in size, round-conic, light crimson, medium firm; good; early midseason.

Cobden Queen. 1. *Mich. Sta. Bul.* **163**:66. 1898.

A seedling of Wilson which originated with John McCaffrey, Cobden, Illinois; introduced about 1895. Imperfect. Plants numerous, vigorous and productive; fruit large, round-conic, regular, light scarlet; flesh medium red, firm, mildly subacid; good; midseason.

Cohansey. 1. *Rural N. Y.* **47**:195. 1888.

Cohanzick. 2. *Wis. Hort. Soc. Rpt.* 243. 1887.

Originated with George M. Cole, Deerfield, New Jersey, as a seedling of Triomphe; introduced in 1886. Worthless at this Station. Perfect. Plants small, low growing, lacking in vigor, unproductive, few; fruit medium or below, roundish, dark red; poor; midseason to late.

Colfax. 1. Downing *Fr. Trees Am.* 982. 1869. 2. *Gard. Mon.* **11**:90, fig. 1869.

Raised from seed by Schuyler Colfax, South Bend, Indiana, about 1855. Grown somewhat for home use and canning about 1870. Imperfect. Plants very numerous, very vigorous, tall, very productive; fruit small, round, dark crimson; flesh soft, subacid; poor; late midseason.

Collingwood. 1. *Am. Gard.* **21**:533. 1900.

Introduced about 1900. Said to be a cross between Clyde and Parker Earle. Perfect. Plants numerous, weak, unproductive; fruit medium in size, irregular, round-conic, bright crimson; flesh firm; very good; late midseason.

Collingwood (of Lovett). 1. *N. J. Hort. Soc. Rpt.* 34. 1913.

Originated with R. P. Lovett, Fallsington, Pennsylvania; thought to be a cross between President and Nich Ohmer. Imperfect. Plants numerous; fruit large, roundish, light crimson; flesh light red, medium firm; good; midseason.

Collins. 1. *N. Y. Sta. Bul.* **447**:67. 1918.

Raised in 1910 from seed of Beder Wood supposed to have been crossed with Pocomoke, by C. H. Collins, Bridgman, Michigan. Perfect. Plants at this Station, numerous, vigorous, very productive; fruit-stems very long, slender, prostrate; fruit large, retains size well, wedge, strongly necked, glossy medium to light red, firm, juicy, almost tart, with an unpleasant flavor; fair; midseason.

Colonel Cheney. 1. *Am. Hort. Ann.* 97. 1871.

Originated by Colonel J. B. Cheney, Wyoming County, New York, as a cross between Russell and Triomphe; introduced in 1870 by A. M. Purdy, Palmyra, New York. Grown considerably in western New York between 1875 and 1880. The American Pomological Society placed this variety in its catalog in 1875 and removed it in 1897. Imperfect. Plants numerous; fruit large, long-conic, bright scarlet; flesh light red, medium firm, acid; good; late.

Colonel Ellsworth. 1. *Gen. Farmer* **24**:228. 1863. 2. Fuller *Sm. Fr. Cult.* 90. 1867.

Originated by A. S. Fuller, Brooklyn, New York; introduced in 1863 by the New York Tribune. Placed in the American Pomological Society's catalog in 1875; removed at the next session in 1877. Perfect. Plants numerous, medium in vigor, very productive; fruit very large, irregular conic, with a long neck, dark scarlet; flesh firm, dry, sweet; good; early.

Colossus. 1. *N. Y. Sta. Bul.* **309**:520. 1908.

Introduced about 1908 by George R. Schauber, Ballston Lake, New York, who secured his plants from William Palmer, Grooms, New York. Imperfect. At this Station, plants medium in vigor and number, healthy, productive; fruit large to medium, retains size well, wedge to round-conic, attractive medium red, firm, mildly acid, not highly flavored; fair; early; does not pick easily.

Columbia. 1. *N. Y. Sta. Bul.* **76**:433. 1894.

Originated by Richard Bagg, Bridgeton, New Jersey. Plants lack productiveness; runners abundant; berries medium in size, pale crimson, soft; inferior.

Columbia (of Wild). 1. *N. Y. Sta. Bul.* **309**:520. 1908. 2. *Ibid.* **401**:174. 1915.

This variety was originated in 1900 by Henry W. Wild, Sarcoxie, Missouri; introduced by J. B. Wild & Brothers of Sarcoxie in 1906. The variety does not stand up well in drouths. The plants are sometimes variegated and stunted. Imperfect. Plants very numerous, vigorous, healthy, medium to tall, very productive; leaves unusually large, thick, dark green; flowers late, small; receptacle large; pistils often quite red; fruit-stems long, thick, erect; berries large, soon becoming small, wedge to round-conic, glossy light red; seeds much raised; flesh well colored, firm, agreeably flavored, pleasantly acid; good to very good; late.

Columbian. 1. *U. S. D. A. Pom. Rpt.* 265. 1892. 2. *N. Y. Sta. Bul.* **109**:234. 1896.

A chance seedling discovered on the farm of Allen Robertson, Fruitland, Tennessee; introduced in 1892. Perfect. Plants numerous, vigorous; fruit small, roundish, light scarlet; flesh light red, firm; fair; early.

Columbus. 1. *Horticulturist* **2**:99. 1847–48.

Raised by John Burr, Columbus, Ohio, as a cross between Hovey and Burr; introduced in 1847. Imperfect. Plants numerous, very productive; fruit large, roundish, dark crimson; flesh soft, sweet; good.

Comet. 1. *Va. Sta. Tech. Bul.* **11**:22. 1916.

Originated with a Mr. Speakman, Carthage, Missouri; introduced about 1890. Plants numerous; fruit small, dark crimson; flesh medium firm; poor.

Commander. 1. *N. Y. Sta. Bul.* **309**:521. 1908. 2. *Va. Sta. Tech. Bul.* **11**:22. 1916.

Originated with Thomas Laxton, Bedford, England; introduced into this country about 1890. Of little value at this Station. Perfect. Plants numerous, vigorous, injured by leaf-spot, productive; fruit-stems prostrate; fruit very large to medium, quite variable in shape, with irregularly furrowed surface, light to dark red, colors unevenly, very mild, not juicy, inferior in flavor; poor; midseason.

Commission. 1. *N. Y. Sta. Bul.* **401**:174. 1915.

Originated by H. J. Schild, Ionia, Michigan, in 1905 by crossing Dawn with one of his seedlings, No. 19, parentage of which was Dawn x Ionia. Perfect. As grown here, plants numerous, vigorous, productive, injured by leaf-spot; fruit-stems thick; fruit medium in size, irregular blunt-wedge, strongly necked, dull light red, very juicy, with whitish flesh, sweet, not highly flavored; fair; midseason.

Commonwealth. 1. *N. Y. Sta. Bul.* **276**:69. 1906.

Originated in 1900 by W. H. Monroe, Beverly, Massachusetts. Added to the catalog of the American Pomological Society in 1909. Perfect. On the Station grounds, plants few, medium vigorous, unproductive; fruit-stems short, thick; fruit variable in size and shape, dark glossy red, firm, juicy, not highly flavored; poor; late.

Compton. 1. *Am. Gard.* **22**:473, fig. 101. 1901.

Originated by J. L. Allan, Philadelphia, Pennsylvania; introduced about 1900. Perfect. Plants very vigorous, very productive; fruit medium in size, long-oval, dark crimson; very good; early midseason.

Connecticut Queen. 1. *Mich. Hort. Soc. Rpt.* 269. 1885.

Introduced about 1884. Perfect. Plants numerous, very vigorous, unproductive; fruit of medium size, dull greenish red, firm; good; late midseason.

Consensus. 1. *Ohio Sta. Bul.* **85**:8. 1897.

Originated with Henry Young, Ada, Ohio; introduced about 1892. Perfect. Plants vigorous, medium productive; fruit variable in size, from medium to large, irregular round-conic, dark scarlet, with green tips; flesh red, firm; good; late.

Consort. 1 *N. Y. Sta. Bul.* **401**:175. 1915.

A cross between Jessie and Warfield, originated by W. S. Butler, Merlin, Oregon, about 1900. Imperfect. In the Station beds, plants numerous, vigorous, productive, healthy; fruit-stems thick, prostrate; fruit large, furrowed, wedge, necked, dull very dark red, firm, sweet, with very dark red flesh; good; midseason.

Continental. 1. *Cult. & Count. Gent.* **44**:470. 1870.

Originated in 1873 by Oscar Felton, Mechanicsburg, New Jersey. Perfect. Plants medium in number; fruit large, round-conic, dark crimson; flesh medium red, firm; very good; late.

Cooney. 1. *Am. Pom. Soc. Rpt.* 165. 1920.

Originated in 1907 with John Semple, Oconomowoc, Wisconsin. Plants vigorous, healthy; fruit large, dark red; flesh red, firm; good; season a week later than Gandy.

Cooper. 1. *Ill. Hort. Soc. Rpt.* 224. 1910. 2. *Va. Sta. Tech. Bul.* **11**:22. 1916.

Originated in 1903 by Samuel Cooper, Delevan, New York, as a seedling of Pan American. Although a seedling of a fall-bearing sort, this variety fruits only in the spring. Berries below medium in size, obtuse-conic, necked, dark crimson, firm, mildly subacid; good; midseason.

Cooper (of Michigan). 1. Weston *Cat.* 8, fig. 1922.

Originated in 1915 by B. F. Cooper, Cassopolis, Michigan. Perfect. At this Station, plants medium to few, vigorous, productive, healthy; leaves thick, large, dark green; flowers midseason, large, with crinkly petals; fruit-stems long, thick; pedicels very long, thick; calyx raised, poorly colored; fruit large, furrowed, irregular wedge to long-conic, green tipped, distinctly necked, variable in color, juicy, very firm, with whitish flesh, sweet; good; early.

Copernicus. 1. *Ohio Sta. Bul.* **85**:7. 1897.

Originated with Henry Young, Ada, Ohio; introduced about 1895. Imperfect. Plants very vigorous, healthy, productive; fruit medium to large, irregular conic, dark scarlet, with green tips; flesh firm, acid; fair; late midseason.

Cordelia. 1. *Can. Exp. Farms Rpt.* 298. 1913.

A seedling of Bubach raised in 1906 at the Central Experimental Farm, Ottawa, Canada. Plants medium in number; fruit large, roundish to wedge-shape, crimson; flesh medium red, medium firm, briskly subacid; good; late midseason.

Corinne. 1. *N. Y. Sta. Bul.* **401**:175. 1915.

Raised in 1900 by W. S. Butler, Merlin, Oregon, as a seedling of Jessie. Imperfect. Station plants very numerous, very vigorous, productive, healthy; flowers early, very small, hidden by the foliage; fruit-stems thick, prostrate; fruit of medium size, round-conic, broad at the base, glossy, medium to dark red, tender, bruises easily, medium juicy, sweet; good; midseason.

Cornelia. 1. *Ohio Hort. Soc. Rpt.* 192. 1883–84. 2. *N. Y. Sta. Bul.* **24**:331. 1890.

Raised by Matthew Crawford, Cuyahoga Falls, Ohio, from mixed seed in 1878. Imperfect. As grown here, plants numerous, unhealthy, lacking in vigor, productive; fruit small, obtuse-conic, dull dark red; flesh firm, scarcely acid, not highly flavored; poor; very late.

Cornucopia. 1. *Gen. Farmer* **9**:207. 1848.

Raised from seed of Hudson Bay, by William Prince, Flushing, New York; introduced about 1848. Imperfect. Plants vigorous, moderately productive; fruit large, conic, bright scarlet; flesh soft, sweet; good.

Country Gentleman. 1. *Va. Sta. Tech. Bul.* **11**:23. 1911.

Originated with R. N. Lewis, Red Hook, New York; introduced about 1896. Perfect. Fruit large, irregular conic, bright scarlet; flesh light red, soft; good.

Covell. 1. *Ohio Sta. Rpt.* 247. 1887.

Covill's Early. 2. *Mich. Hort. Soc. Rpt.* 270. 1885.

Originated about 1882 with Charles Carpenter, Kelleys Island, Ohio. Perfect. Plants numerous, productive; fruit of medium size, roundish, dark crimson; flesh medium red, firm; good; very early.

Cowing. 1. *Gard. Mon.* **13**:245. 1871.

Originated with Granville Cowing, Muncie, Indiana, about 1867. Imperfect. Plants numerous, vigorous, productive; fruit large, blunt-conic, crimson; flesh medium firm, subacid; very good; midseason.

Crawford. 1. *Ohio Hort. Soc. Rpt.* 64. 1886–87. 2. *N. Y. Sta. Bul.* **24**:331. 1890.

Raised in 1881 by Matthew Crawford, Cuyahoga Falls, Ohio, by whom it was introduced in 1889. Placed in the American Pomological Society's catalog in 1891 and remained in the last catalog in 1909. Perfect. On the Station grounds, plants vigorous, very numerous, healthy, productive; fruit large, conic, glossy dark red, very firm, with scant juice; very good; late.

Cream. 1. *Am. Pom. Soc. Rpt.* 290. 1921.

Raised by Albert F. Etter, Ettersburg, California, as a cross between his seedling No. 330 and Trebla; introduced about 1921. Imperfect. In the Station beds, plants numerous, lacking in vigor, dwarfish, very productive; flowers midseason, very small; fruit-stems slender, erect; fruit medium to small, plump, conic, very pale light red, unattractive, very juicy, medium firm, subacid; poor; very late.

Crescent. 1. *U. S. D. A. Rpt.* 419. 1890. 2. *Va. Sta. Tech. Bul.* **11**:23. 1916.

Crescent Seedling. 3. *Gard. Mon.* **20**:310. 1878.

Park Beauty. 4. *Am. Pom. Soc. Rpt.* 18. 1885.

Boynton. 5. Ont. Dept. Agr. *Fr. Ont.* 303. 1914.

This sort originated in 1870 as a chance seedling with William Parmalee, New Haven, Connecticut. It was placed in the American Pomological Society's recommended fruit list in 1879. This variety was once a prime favorite in many parts of America because of productive plants adapted to a wide range of soils, but is now little grown because of poor quality and small berries. Imperfect. Plants very numerous, vigorous, healthy only in the most favorable locations, otherwise rusts badly, very productive; fruit-stems of medium length and thickness, erect; calyx easily detached; fruit medium in size, round-conic, glossy light red; flesh light red, medium in firmness, juicy, subacid; fair; early.

Crimson Cluster. 1. *Rural N. Y.* **45**:482, 541. 1886.

King Cluster. 2. *Ibid.* **45**:510. 1886.

Originated in 1882 by E. W. Durand, Irvington, New Jersey. An English variety of this name, originated in 1860 by a Mrs. Clements, has also been tested in this country. Imperfect. Fruit medium to large, oval-conic, bright crimson, medium firm; very good; early midseason.

Crimson Cluster (of Maryland). 1. *Ohio Sta. Bul.* **154**:34. 1904.

A chance seedling supposed to be of Gandy which it resembles, originating in Anne Arundel County, Maryland; introduced about 1902. Perfect. Plants numerous, vigorous, productive; fruit large, conic, regular, bright attractive crimson; flesh light red, firm, briskly subacid; good; late.

Crimson Cone. 1. *Cultivator* **3**:348. 1846. 2. Fuller *Sm. Fr. Cult.* 90. 1867.

Scotch Pineapple. 3. Barry *Fr. Garden* 346. 1851.

Scotch Runner. 4. Thomas *Am. Fruit Cult.* 585. 1885.

An old sort which originated in this country before 1820. From 1840 to 1860 it was the leading variety near New York City. The plants received little care but as they were hardy and vigorous, much fruit was produced. An English variety with this name but having imperfect flowers was also known in this country. Crimson Cone was added to the catalog of the American Pomological Society in 1862, and removed in 1869. Perfect. Plants numerous, vigorous, hardy and productive; fruit of medium size, regular, long-conic, with a long neck, light glossy crimson; flesh medium red, firm, acid, aromatic; good; late.

Crimson Favorite. 1. Fuller *Sm. Fr. Cult.* 90. 1867.

Raised from seed of Wilson by A. S. Fuller, Ridgewood, New Jersey, who introduced it in 1863. Plants unproductive; fruit large, blunt-conic, dark glossy crimson; flesh firm, sprightly; very good.

Crimson Pine. 1. *Cultivator* 3:348. 1846.

Originated by William Prince, Flushing, New York; introduced about 1845. Perfect. Fruit large, conic, dark red, finely flavored; early.

Crockett. 1. *Mich. Sta. Bul.* **195**:79. 1902.

Originated in Tennessee; introduced about 1900. Perfect. Plants numerous, vigorous, productive; fruit of medium size, irregular oblong-conic, light crimson; flesh medium red, firm, subacid; good; early.

Crosby. 1. *N. Y. Sta. Bul.* **64**:6. 1894.

Originated with Phineas Crosby, Clinton, Wisconsin; introduced about 1890. Perfect. At this Station, plants vigorous, numerous, with good foliage, productive; fruit medium in size, firm; good; midseason to late.

Crozier. 1. *Ohio Sta. Bul.* **186**:5. 1907.

Originated with Randolph Crozier, Crimson Springs, West Virginia; introduced about 1907. Perfect. Plants numerous; fruit medium to large, long-conic to wedge-shape, dark glossy crimson; flesh light red, firm; good; early midseason.

Crystal City. 1. *W. N. Y. Hort. Soc. Rpt.* 119. 1880.

Acme. 2. *Del. Sta. Bul.* **24**:5. 1894.

A chance seedling which originated with E. Williams, Crystal City, Missouri; introduced about 1876. A small-fruited sort of the wild type, closely resembling Old Scarlet; valued for home use but too small for market. Added to the catalog of the American Pomological Society in 1879, and removed in 1883. Perfect. Plants numerous, vigorous; fruit small, conic, necked, light glossy crimson; flesh pink, firm, sweet; good; very early.

Culp. 1. *Ohio Sta. Bul.* **364**:75. 1923.

Received at the Ohio Station in 1912 from J. P. Culp. Imperfect. Plants productive; foliage scanty; fruit resembles Haverland, medium in size, regular, long-conic, unattractive scarlet; flesh light red, subacid; good; midseason.

Cumberland. 1. *Am. Pom. Soc. Rpt.* 48. 1883.

Cumberland Triumph. 2. *Gard. Mon.* **16**:278. 1874.

Chambers. 3. *Ohio Sta. Bul.* **III**:No. 7, 212. 1890.

Raised by Amos Miller, Carlisle, Pennsylvania, from seed of Green Prolific supposed to have been fertilized by Jucunda; introduced in 1874. From 1880 to 1895 it was a standard sort for home use and local markets, but was too soft and light colored for the general market. The American Pomological Society placed this variety in its catalog in 1879, where it remained in the last catalog in 1909. Perfect. Plants numerous, erect, vigorous, productive; fruit large, very regular, round-conic, light scarlet; flesh light red, soft, mildly subacid; good; midseason.

Cushing. 1. *Horticulturist* **3**:70. 1848–49.

Originated by Dr. W. D. Brincklé, Philadelphia, Pennsylvania; introduced about 1845. Perfect. Fruit medium in size, round-conic, light scarlet; flesh soft, sprightly; good.

Cutter. 1. *Mag. Hort.* **25**:542. 1859.

A chance seedling found in his garden near a bed of many sorts, by B. F. Cutter, Pelham, New Hampshire; introduced in 1859. A popular sort in New England from 1860 to 1875. Perfect. Plants numerous, vigorous, productive; fruit medium in size, blunt, round-conic, slightly necked, bright scarlet; flesh scarlet, rather soft, juicy, sweet; good; early midseason.

Cyclone. 1. *N. Y. Sta. Bul.* **76**:433. 1894.

Originated in 1889 by E. W. Cruse, Leavenworth, Kansas, as a cross between Crescent and Cumberland. Perfect. In the Station beds, plants vigorous, numerous, moderately productive; fruit-stems good; fruit medium in size, long-conic, dark red, medium firm, sweet; fair to good; medium early.

D & D. 1. *Mich. Sta. Bul.* **81**:6. 1892. 2. *N. Y. Sta. Bul.* **64**:7. 1894.

Introduced about 1890 by J. A. Dobbins, Barnesville, Ohio. Perfect. In the Station beds, plants injured by unfavorable weather conditions, medium in number, unproductive; fruit medium to large, round-conic, dark red, firm; fair; midseason.

Daisy. 1. *Rural N. Y.* **43**:495. 1884.

Daisy Miller. 2. *Ibid.* **44**:529, fig. 367. 1885.

Originated about 1880 with Samuel Miller, Bluffton, Missouri. Perfect. Plants numerous, vigorous, unproductive; fruit large, ovate-conic, crimson, acid; midseason.

Daisy (of Zane). 1. *N. Y. Sta. Bul.* **24**:332. 1890.

A cross between Crescent and Cumberland originated by T. G. Zane, New Jersey; introduced about 1889. Imperfect. Plants numerous, very vigorous, productive; foliage subject to rust; fruit medium in size, round-conic, light glossy red; flesh light red, rather soft, juicy, acid; fair; early midseason.

Dakota. 1. *Mich. Sta. Bul.* **148**:55. 1897.

Originated in Bismarck, North Dakota, as a supposed seedling of Crescent; introduced about 1883. Perfect. Plants numerous, vigorous, hardy and productive; fruit medium to large, long-conic, necked, bright scarlet; flesh soft, dry; good; midseason.

Damask Beauty. 1. *Gard. Mon.* **17**:336. 1875.

Originated with a Mr. Snider, Tallmadge, Ohio; introduced about 1875. Perfect. Fruit medium in size, blunt, round-conic, bright scarlet; flesh light red, soft; very good; early midseason.

Danby. 1. *Va. Sta. Tech. Bul.* **11**:25. 1916.

Originated by H. J. Schild, Ionia, Michigan, in 1903 as a cross between two of his seedlings. Imperfect. On the Station grounds, plants few, vigorous, productive, healthy; fruit-stems short, thick, prostrate; fruit very large, furrowed, wedge, glossy medium red, colors unevenly, juicy, medium firm, sprightly; good; late midseason.

Daniel Boone. 1. *Mich. Hort. Soc. Rpt.* 194. 1883. 2. *N. Y. Sta. Bul.* **24**:332. 1890.

Originated in 1875 by A. D. Webb, Bowling Green, Kentucky. Imperfect. Plants at this Station, not vigorous, numerous, productive, with light green foliage; fruit medium in size, long-conic, bright red, firm, acid; fair to good; medium early.

Darling. 1. *N. H. Sta. Bul.* **74**:100. 1900.

A seedling of Michel originated by Mark T. Thompson, Rio Vista, Virginia; introduced about 1896. Perfect. Plants numerous, vigorous; fruit small, regular, round-conic, sometimes with a short neck, light red; flesh medium red, medium firm, mildly subacid; good; early.

Darlington. 1. *N. Y. Sta. Bul.* **401**:175. 1915.

Originated in New Jersey about 1905 as a supposed seedling of Gandy; introduced in 1912. Perfect. At this Station, plants medium in number, vigor and yield, healthy; fruit-stems short, thick, prostrate; fruit large, often furrowed, round-conic to a wide wedge, with poor apex, unattractive medium red, colors unevenly, very juicy, firm, subacid, aromatic; good; midseason.

Davis. 1. *Rural N. Y.* **46**:589, figs. 326, 327. 1887.

Originated in 1875 with J. J. Davis, Warren County, New Jersey. Described as "an exaggerated Sharpless." Perfect. Plants vigorous, productive; fruit of the size and shape of Sharpless but more irregular and with green tips.

Dawn. 1. *Va. Sta. Tech. Bul.* **11**:26. 1916.

Originated by H. J. Schild, Ionia, Michigan, as a seedling of Moore Prolific; introduced about 1910. Plants medium in number; fruit above medium in size, round-conic, dark scarlet; flesh medium red, firm, subacid; good; late.

Dayton. 1. *Ann. Hort.* 201. 1892.

Dayton's Early. 2. *N. Y. Sta. Bul.* **64**:7. 1894.

A chance seedling discovered on his place by David Feicht, near Dayton, Ohio. Perfect. As grown here, plants medium in number, unproductive, with good foliage; fruit medium to large, symmetrical, long-conic, attractive light red, medium firm, mildly subacid, with a slight Alpine flavor; very good; medium early, the season lasting two weeks.

De Wet. 1. *Rural N. Y.* **63**:542. 1904.

General De Wet. 2. *Ibid.* **61**:480. 1902.

A cross between Bubach and Parker Earle raised by T. C. Kevitt, Athenia, New Jersey; introduced in 1902. Imperfect. Plants few, vigorous, productive; fruit of medium size, short-conic, slightly necked, dark crimson; flesh red, firm, acid; good; late midseason.

Deacon. 1. *N. Y. Sta. Bul.* **336**:53. 1911.

Originated by George Goodell, Danvers Center, Massachusetts, as a supposed cross between Sample and Abington; introduced by C. S. Pratt, Reading, Massachusetts, in 1909. Perfect. On the Station grounds, plants medium in number, size, vigor and yield, healthy; fruit large, conic or wedge, glossy medium red, juicy, firm, sweet, aromatic; good; midseason.

Deephaven. 1. *Minn. Hort. Soc. Rpt.* 226. 1921.

A cross between Dunlap and Progressive originated at the Minnesota Fruit Breeding Farm, Excelsior, Minnesota. Sent out about 1912 as Minnesota No. 41; named Deephaven in 1921. Perfect. Plants numerous, vigorous, hardy; fruit large, round-conic, medium red, glossy; flesh light red, juicy, mildly subacid; good; ripens in the spring with Progressive, and fruits heavily in the fall on young runner plants.

DeLancey. 1. *Ohio Sta. Bul.* **364**:76. 1923.

Received at the Ohio Station in 1911 from L. J. Libis. Imperfect. Plants vigorous, healthy, productive; fruit medium or above in size, round-conic to round-wedge, dark red; flesh salmon, firm, subacid; good; late midseason.

Delaware. 1. *Am. Gard.* **19**:472. 1898.

Originated in Seaford, Delaware; introduced about 1896. Perfect. Plants vigorous, hardy, moderately productive; fruit large, broad-conic, bright scarlet; flesh whitish, firm, acid; fair; midseason.

Delaware Pride. 1. *Md. Sta. Bul.* **211**:66. 1918.

Originated in 1910 with G. E. Bunting & Sons, Selbyville, Delaware. Plants medium in number, vigorous, productive; fruit large, irregular wedge-conic, bright crimson; flesh medium red, moderately firm, subacid; good; midseason.

Delecto. 1. *Am. Pom. Soc. Rpt.* 165. 1920.

Raised by Albert F. Etter, Ettersburg, California, in 1912. Perfect. In the Station beds, plants medium in number and vigor, low growing, unproductive, healthy; leaves characteristically small and dark green; fruit-stems short; seeds distinctly raised; fruit medium in size, round-conic, slightly necked, dull dark red, very juicy, firm, sweet, aromatic; good; very late.

Delicious.

Found in an orchard in 1914, by J. A. Morgan, Scottsville, New York; thought to be a seedling of Sample. Perfect. Plants at this Station numerous, vigorous, productive, healthy; fruit-stems long, thick, prostrate; fruit large to medium, blunt-wedge to blunt-conic, glossy medium red, juicy, firm, highly flavored, sprightly; good; late midseason.

Delicious (of Michigan). 1. Kellogg *Cat.* 22. 1922.

Originated in 1918 by Travis Brothers, Cleveland, New York, as a cross between Atlantic and Fendall. Perfect. At this Station, plants numerous, vigorous, very productive, healthy; leaves dark green; fruit-stems long, thick, erect; calyx large, raised, leafy; fruit large to medium, long-wedge to long-conic, glossy light to medium red, colors unevenly, juicy, firm, sprightly; very good; late.

Della K. 1. *Can. Hort.* **19**:292, fig. 985. 1896.

A seedling of Sharpless raised by E. B. Stevenson, Guelph, Ontario, Canada; introduced about 1896. Perfect. Plants numerous; fruit of medium size, conic, scarlet, firm; good; late midseason.

Delmar. 1. *Ohio Sta. Bul.* **364**:76. 1923.

Received at the Ohio Station in 1914 from G. W. Davis. Imperfect. Plants large, very vigorous; fruit medium in size, regular, round-conic to round-wedge, light glossy crimson; flesh firm, juicy, red, mildly subacid to sweet; excellent; late.

Desdemona. 1. *Can. Exp. Farms Rpt.* 298. 1913.

Originated at the Central Experimental Farm, Ottawa, Canada, as a seedling of Bubach; introduced in 1913. Imperfect. Plants medium in number; fruit medium to large, wedge-shape, dark crimson; flesh dark red, medium firm, briskly subacid; good; late midseason.

Dew. 1. *Mich. Sta. Bul.* **59**:25. 1890. 2. *N. Y. Sta. Bul.* **64**:7. 1894.

Originated in 1876 by H. F. Dew, Lansing, Michigan, as a cross between Sharpless and Manchester. Perfect. Station plants vigorous, healthy, medium in number, productive; fruit large, irregular in form, dark red, soft; fair; midseason to late, ripening period long, lasting nearly three weeks.

Dewdrop. 1. *N. Y. Sta. Bul.* **401**:176. 1915.

A cross between Jucunda and a wild prairie strawberry, raised by H. F. Dew, Albion, Michigan, prior to 1887. Perfect. On the Station grounds, plants few, medium in vigor and yield, healthy; fruit-stems long, thick, prostrate; calyx very large, raised, leafy; fruit large to very large, decidedly irregular, strongly furrowed, necked, variable in color, dull, firm, not juicy, with whitish flesh, hollow at the center, subacid; fair; late.

Dewey. 1. *Rural N. Y.* **45**:509, fig. 308. 1886.

Raised by P. M. Augur, Middlefield, Connecticut, about 1883, as a cross between Jersey Queen and Prince of Berries. Perfect. Plants vigorous, healthy and productive; fruit of medium size, roundish, necked, bright crimson; flesh light red, moderately firm; fair; midseason.

Dewey (of Nimon). 1. *Am. Gard.* **19**:582. 1898.

A cross between Haverland and Parker Earle raised by James Nimon, Denison, Texas, about 1893. Perfect. Plants few, medium in vigor and productivity; foliage subject to rust; fruit of medium size, long-conic, dark red; flesh bright red, moderately firm, juicy, subacid; good; midseason.

Diadem. 1. *Horticulturist* **8**:500. 1853.

Originated by William Prince, Flushing, New York; introduced about 1853. Imperfect. Plants vigorous; fruit large, roundish, light scarlet; flesh soft, acid; good.

Dicky. 1. *N. Y. Sta. Bul.* **336**:54. 1911.

A cross between Marshall and Sample, said to have originated with J. D. Gowing, North Reading, Massachusetts; introduced by C. S. Pratt, Reading, Massachusetts, in 1908. Perfect. In the Station beds, plants medium in number, size, vigor, and yield, healthy; fruit large, conic or wedge, glossy medium red, juicy, firm, tart, with an unpleasant flavor; poor; midseason.

Dighton.

Dighton Rock. 1. *N. Y. Sta. Bul.* **309**:521. 1908.

Originated with A. B. Howard & Son, Belchertown, Massachusetts; introduced about

1908. Perfect. Plants at this Station, few, inferior in vigor, healthy, productive; fruit-stems thick, prostrate; calyx leafy; seeds sunken; fruit large to medium, dropping rapidly in size, round-conic, glossy dark red, firm, pleasantly acid, highly flavored, with dark red flesh; very good to best; midseason. Worthy of trial.

Discovery.

New Discovery. 1. *N. Y. Sta. Bul.* **401**:186. 1915.

Raised in 1894 by L. H. Girton, Bristol, Indiana, as a cross between Warfield and Bubach. The variety is worthy of trial, as one of the firm " fig-type " berries. Perfect. Station plants large, vigorous, very productive, healthy; fruit-stems long, semi-erect; calyx large, raised, leafy; seeds raised; fruit large, blunt-wedge to oval, necked, glossy dark red, very firm, sweet, well flavored, with dark red flesh; very good; midseason.

Dixie. 1. *N. J. Hort. Soc. Rpt.* 44. 1902.

Dixie Belle. 2. *Md. Hort. Soc. Rpt.* 26. 1907.

Originated in North Carolina; introduced about 1898. Imperfect. Plants numerous, medium in vigor and productivity; fruit large, irregular roundish, variable in color from light to dark scarlet; flesh light pink, soft, juicy, subacid; fair; midseason.

Dixon. 1. *Rural N. Y.* **63**:553, fig. 241. 1904. 2. *N. Y. Sta. Bul.* **336**:54. 1911.

Originated about 1896 by Emil Grafe, Rossville, Staten Island, New York; it is supposed to be a seedling of Belt. Perfect. As grown here, plants very few, small, weak, unhealthy, unproductive; fruit medium to large, wedge, dull medium red, often green tipped, medium juicy, firm, tart, with an unpleasant flavor; poor; midseason.

Dr. Burrill. 1. Kellogg *Cat.* 64, Pl. 1916. 2. *N. Y. Sta. Bul.* **447**:68. 1918.

The variety was originated by J. R. Reasoner, Urbana, Ilinois, in 1909, as a cross between Crescent and Dunlap. Very similar if not identical with Dunlap. Perfect. Plants numerous, intermediate in vigor and height, healthy, productive; fruit-stems semi-erect, branching; calyx distinctly raised; fruit large, symmetrical, conic to wedge, strongly necked, medium to dark red, glossy; flesh medium red throughout, variable in flavor and juiciness, firm, subacid; fair to good; midseason.

Doctor Nicaise. 1. *Mag. Hort.* **33**:299. 1867. 2. Goeschke *Erdbeeren* 236. 1874.

Originated by a Dr. Nicaise, Chalons-sur-Marne, France; introduced into this country about 1864. The variety had little merit in this country for its fruit, but its strong everbearing tendency made it of value as a parent in breeding everbearing varieties. Perfect. Plants lacking in vigor and productivity; fruit very large, irregular coxcomb, bright scarlet; flesh medium firm, juicy, sweet; fair; early.

Doctor Warder. 1. *Horticulturist* **26**:250. 1871.

A cross between Fillmore and Victoria raised by Louis Ritz, Plainfield, New Jersey; introduced in 1871. Plants vigorous, hardy and productive; fruit large, long-conic, bright crimson; flesh light red, firm, acid; good; late.

Dole. 1. *Mich. Sta. Bul.* **195**:79. 1902.

Originated by J. G. Dole, Ravenna, Ohio; introduced about 1896. Imperfect. Plants medium in number, vigorous, productive; fruit of medium size, round-conic, bright scarlet; flesh light red, medium firm, mildly subacid; fair; late midseason.

Dollar. 1. *Cal. Sta. Rpt.* 378. 1895–97. 2. *Va. Sta. Tech. Bul.* **11**:27. 1916.

Originated with Oscar F. Felton, Merchantsville, New Jersey; introduced about 1885. Dollar is the leading variety near Sacramento, California, where it is liked for its firm, bright, attractively colored fruit. The young plants bear as soon as rooted and steadily from late in April until autumn. Added to the catalog of the American Pomological Society in 1899, where it remained in the last catalog in 1909. Perfect. Plants medium in number, vigorous, productive; fruit large, round-conic, light crimson; flesh medium red, firm, subacid; good; midseason; autumn-fruiting.

Dollar Junior. 1. Lovett *Cat.* 5. 1902.

A seedling of Dollar which originated in California; introduced about 1902. Perfect. Plants vigorous, healthy; fruit large, long-conic, dark red; flesh light red, firm, dry; good; midseason.

Dora. 1. *Can. Exp. Farm Bul.* **62**:30. 1909.

A seedling of Crescent which originated with C. C. Stone, Moline, Illinois; introduced about 1895. Imperfect. Plants medium in number, vigorous; foliage subject to rust; fruit medium in size, conic to wedge-shape, bright red; flesh bright red, medium firm, juicy, acid; good; late midseason.

Dorchester. 1. *Mass. Hort. Soc. Rpt.* 171. 1878.

Raised by Marshall P. Wilder, Dorchester, Massachusetts; introduced about 1878. Imperfect. Fruit medium in size, conic, crimson; flesh whitish; fair.

Double Cropper. 1. *Mich. Sta. Bul.* **206**:52. 1903.

Originated with a Mr. Crines, New Jersey, about 1890. Perfect. Plants numerous, hardy, vigorous, and productive; fruit of medium size, round-conic, dark glossy crimson; flesh pink, firm, juicy, acid; good; early; claimed to produce a fall crop.

Douglas. 1. *Va. Sta. Tech. Bul.* **11**:27. 1916.

Originated with P. J. Myers, Bridgman, Michigan, as a chance seedling; introduced in 1913. Perfect. Plants numerous; fruit medium in size, roundish, crimson, firm; midseason.

Downer Prolific. 1. *Horticulturist* **13**:371. 1858. 2. Fuller *Sm. Fr. Cult.* 91. 1867.

Raised " from seed of the native Iowa strawberry " in 1854, by J. S. Downer, Elkton, Kentucky. From 1865 to 1880 Downer Prolific was a leading sort for home use and local market, the fruit being rather soft for distant shipment. It thrived under neglect. Added to the catalog of the American Pomological Society in 1862, where it remained until 1897. Perfect. Plants numerous, vigorous, healthy, hardy and productive; fruit medium in size, round-conic, light scarlet; flesh light red, soft, acid; good; early.

Downton. 1. *Trans. Lond. Hort. Soc.* **3**:396, Pl. 15. 1820. 2. Downing *Fr. Trees Am.* 529. 1845.

Originated from seed in 1817 by Thomas Andrew Knight, Downton Castle, Wiltshire, England. Introduced into this country about 1825, and was popular here for a few years. Perfect. Plants numerous, unproductive; fruit large, ovate or coxcomb, necked, dark purplish scarlet; flesh light red, firm, rich and aromatic; late.

Drought King. 1. *Am. Gard.* **18**:536. 1897. 2. *Mich. Sta. Bul.* **176**:7. 1899.

Originated with D. Brandt, Bremen, Ohio; introduced about 1895. Imperfect. Plants numerous, vigorous, productive; fruit medium in size, round-conic, dark scarlet; flesh dark red, medium firm, juicy, acid; good; midseason.

Dual. 1. *Ohio Sta. Bul.* **236**:219. 1912.

Originated with Frank Dual, Ohio; introduced about 1909. Perfect. Plants medium in number and productivity; fruit large, conic to wedge-shape, light red, scarlet; flesh light red, moderately firm, juicy, mild, sweet; good; early midseason.

Dubois. 1. *N. Y. Sta. Bul.* **36**:631. 1891.

Originated with M. D. Dubois, Newburgh, New York; introduced about 1889. Perfect. In the Station beds, plants similar to Sharpless; fruit distinctly dry and spongy; inferior in quality; unproductive.

Duchess. 1. *Gard. Mon.* **17**:14. 1875.

Early Dutchess. 2. *Horticulturist* **28**:281. 1873.

Originated with D. H. Barnes, Poughkeepsie, New York; introduced in 1876. Popular as an early market sort near New York City about 1880. Added to the catalog of the American Pomological Society in 1879 and removed in 1897. Perfect. Plants few, vigorous; fruit medium to large, round-conic, bright crimson; flesh light red, medium firm, briskly subacid; very good; early.

Duff. 1. *Rural N. Y.* **60**:493. 1901.

Originated in North Carolina; introduced about 1900. Imperfect. Plants numerous, vigorous; fruit small, conic, bright scarlet; flesh medium red, firm, acid; fair; early.

Duluth. 1. *Minn. Hort. Soc. Rpt.* 226. 1921.

Minnesota 1017. 2. *N. Y. Sta. Bul.* **447**:73. 1918.

A cross between Pan American and Dunlap originated at the Minnesota Fruit Breeding Farm, Excelsior, Minnesota, in 1909. Perfect. Plants at this Station few, medium in vigor, dwarfish, very productive per plant; autumn-fruiting; leaves small, dark green, thick; fruit-stems thick, erect; fruit above medium to small, irregular conic to blunt-wedge, broad and flat at the base, dull medium red, juicy, very firm, with hollow center, tart; good; midseason.

Duncan. 1. *N. J. Hort. Soc. Rpt.* 14. 1877. 2. *Cult. & Count. Gent.* **45**:518. 1880.

A cross between Russell and Wilson, raised by J. L. Lucas, Ulster County, New York, by whom it was introduced in 1875. A European sort of this name was also tested in this country about 1855. Added to the catalog of the American Pomological Society in 1879, and removed in 1897. Perfect. Plants numerous, vigorous; fruit of medium size, roundish, scarlet; flesh light red, firm; very good; early.

Duncan (of New Jersey). 1. Crawford *Cat.* 4. 1904. 2. *Md. Sta. Bul.* **211**:66. 1918.

A chance seedling found in New Jersey about 1894. Perfect. Plants numerous, moderately vigorous; fruit medium in size, uniform, round-conic, bright red; flesh bright red, firm, juicy, subacid; fair; midseason.

Dundee. 1. Downing *Fr. Trees Am.* 526. 1845.

A Scotch variety grown somewhat in this country about 1850 to 1860. Imperfect. Plants hardy, very productive; fruit medium in size, roundish oval, regular, light scarlet; flesh firm, acid, rich; late.

Dunlap. 1. *Am. Gard.* **20**:510. 1899.

Senator Dunlap. 2. *Ohio Sta. Bul.* **154**:56. 1904. 3. *N. Y. Sta. Bul.* **309**:547. 1908.

High quality and handsome appearance of the berries make Dunlap a favorite for the garden and local markets in the northern states east of the Rocky Mountains. In some localities of this great region it is grown almost exclusively. The faults are that the berries are often too soft to ship well and many of them are small. The plants are hardy, healthy, and productive, but sometimes produce too many runners. Howard is taking the place of Dunlap in many parts of the East. Dunlap originated about 1890 with J. R. Reasoner, Urbana, Illinois; introduced in 1899 by M. Crawford, Cuyahoga Falls, Ohio; entered in the fruit catalog of the American Pomological Society in 1909; parentage uncertain but possibly a seedling of Warfield.

Perfect. Plants very numerous, small but vigorous, healthy, very productive in number of berries but lacking in measured yield; leaves of medium size and color, thin, glossy. Flowers early midseason; petals 5–8; stamens medium in number; receptacle small. Fruit medium early, season short; fruit-stems long, slender, semi-erect; pedicels long, slender; calyx variable in size, reflexed, usually raised, often tinged red; sepals long; berries large to medium, drop rapidly in size as the season advances, round-conic or elongated-conic, usually with a distinct neck; apex pointed; color glossy, attractive light red, quickly changing to a dark red; seeds sunken; flesh well colored to the center, juicy, mild, pleasantly flavored; quality good.

Dunmore. 1. *N. Y. Sta. Bul.* **401**:176. 1915.

Raised by H. J. Schild, Ionia, Michigan, in 1905 as a cross between Dawn and a seedling of his, the parentage of which was Dawn by Ionia. Imperfect. At this Station, plants numerous, productive, healthy; fruit-stems short, thick, prostrate; fruit variable in size, round-conic to wedge, glossy medium to dark red, colors unevenly, mild, medium juicy, soft; good; midseason.

Durand. 1. *Rec. Hort.* **2**:62. 1868.

Durand's Seedling. 2. Fuller *Sm. Fr. Cult.* 91, fig. 29. 1867.

Originated about 1864 by E. W. Durand, Irvington, New Jersey. Perfect. Plants medium in number and vigor, unproductive; fruit large, oblong to oblong-conic, scarlet; flesh whitish, firm, juicy; good.

Durand Favorite. 1. *N. J. Hort. Soc. Rpt.* 7. 1878.

Originated by E. W. Durand, Irvington, New Jersey; introduced about 1875. Plants medium in vigor, requiring high culture; fruit large, conic to wedge-shape, crimson.

Dutter. 1. *Mich. Sta. Bul.* **80**:6. 1892.

A cross between Jersey Queen and Sharpless originated by Jerry Dutter, Indiana; introduced in 1887. Perfect. Plants numerous, vigorous, productive; fruit large, round-conic, light crimson; flesh medium red, medium firm; good; late midseason.

E. P. Roe. 1. *Am. Gard.* **12**:481. 1891. 2. *N. Y. Sta. Bul.* **76**:434. 1894.

A chance seedling which originated in the garden of W. B. Brown, Newburgh, New York; introduced in 1891. Another sort, which is pistillate and early has been sent out under this name. Perfect. In the Station beds, plants numerous, very unproductive; fruit medium in size, round-conic, borne on short fruit-stems, dark red, firm; very good; late.

Eagle. 1. *Md. Sta. Bul.* **211**:61. 1918.

On trial at the Maryland Station. Perfect. Plants medium in size and vigor, productive; fruit medium to large, irregular wedge-shape, crimson; flesh dark red, juicy, subacid; fair; early midseason.

Earliana. 1. *Va. Sta. Tech. Bul.* **11**:29. 1916.

Originated with J. L. Babcock, Norfolk, Virginia, about 1902. Perfect. Plants numerous; fruit small, round-conic, dark crimson, firm, subacid; early.

Earliest. 1. *N. Y. Sta. Bul.* **109**:235. 1896.

Thompson's Earliest. 2. *Ohio Sta. Bul.* **146**:38. 1903.

Originated with Mark T. Thompson, Rio Vista, Virginia. Perfect. Station plants numerous, moderately productive, healthy; fruit-stems short; fruit medium or below in size, round-conic, light red, firm, with whitish flesh, subacid; fair; very early.

Earliest (of Salzer). 1. Salzer *Cat.* 19. 1900.

Salzer's Earliest. 2. *Am. Gard.* **19**:742. 1898.

Introduced in 1893 by John A. Salzer, La Crosse, Wisconsin. Perfect. Fruit medium in size, long-conic, light crimson; flesh firm; good; early.

Earliest of All. 1. *Md. Sta. Bul.* **160**:209. 1911.

Introduced about 1906. Perfect. Plants very large, vigorous; fruit large, round-conic to wedge-shape, scarlet; flesh pink, firm, juicy, mildly subacid; fair; very early.

Early Beauty. 1. *Ohio Sta. Bul.* **146**:31. 1903. 2. *N. Y. Sta. Bul.* **309**:522. 1908.

Originated in Iowa in 1898 as a seedling of Crescent. Perfect. As grown here, plants numerous, vigorous, healthy, productive; fruit-stems long, slender; fruit above medium to small, round-conic to long-conic, light to medium red, mildly sweet, not high in flavor, with whitish flesh, medium to firm; fair; early.

Early Bird. 1. *Va. Sta. Tech. Bul.* **11**:29. 1916.

A seedling of Dunlap which originated with E. H. Riehl, Alton, Illinois. Perfect. Plants medium in number; fruit of medium size, round-conic, light crimson; flesh medium red, medium firm, subacid; good; early.

Early Bird (of Warren). 1. *Ohio Sta. Bul.* **54**:45. 1894.

Originated with S. H. Warren, Weston, Massachusetts. Perfect. Fruit small, irregular conic, light crimson; flesh medium firm; fair; early midseason.

Early Canada. 1. *W. N. Y. Hort. Soc. Rpt.* 24. 1882.

Originated with A. M. Smith, St. Catherines, Ontario; supposed to be a seedling of Wilson; introduced in 1878. Very similar to Wilson but ripens a week earlier. Perfect. Plants medium in number; fruit of medium size, round-conic, dark crimson; flesh dark red, very firm, acid; good; early.

DUNLAP

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Early Golden. 1. *Ohio Sta. Bul.* **236**:219. 1912.

Originated with T. B. Carlisle, Lisbon, Ohio; introduced about 1909. Perfect. Plants medium in number, small; foliage scanty; fruit small, conic, bright red; flesh bright scarlet, firm, acid; good; very early.

Early Harvest. 1. *Md. Sta. Bul.* **160**:209. 1911.

Originated with Louis Hubach, Judsonia, Arkansas, as a cross between Thompson and Excelsior; introduced in 1908. Imperfect. Plants medium in number, vigorous; fruit of medium size, roundish, dark crimson; flesh red, soft, juicy, subacid; fair; early.

Early Hathaway. 1. *Ohio Sta. Bul.* **154**:35. 1904.

Texas. 2. *Ont. Fr. Exp. Sta. Rpt.* 81. 1903.

Originated in 1892 by Louis Hubach, Judsonia, Arkansas; introduced in 1902 by the originator as Early Hathaway, and in the same year as Texas by another firm. A very productive sort formerly grown in northern Alabama, Kentucky, and Maryland, but now being discarded because of its light color and lack of firmness. Added to the last catalog of the American Pomological Society in 1909 as Texas. Perfect. Plants medium in number, vigorous, productive; fruit medium in size, round-conic, light scarlet; flesh whitish, firm, acid; fair; early midseason.

Early Howard. 1. *Md. Sta. Bul.* **211**:67. 1918.

Originated with A. J. Howard, Somerset County, Maryland; introduced in 1912. Perfect. Plants numerous, vigorous; fruit of medium size, uniformly round-conic, bright crimson; flesh red, firm, juicy, mildly subacid; fair; early.

Early Hudson. 1. Prince *Treat. Hort.* 75. 1828.

Hudson (of Cincinnati). 2. *Cultivator* **3**:349. 1846.

Thought to have originated in New York prior to 1790. About 1830 it was a leading variety around New York, and about 1845 the leading sort near Cincinnati. Imperfect. Plants numerous, vigorous, productive; fruit medium to large, round-conic, dark crimson; flesh dark red, firm, acid; very good; early midseason.

Early Jack. 1. *Mich. Sta. Bul.* **129**:8. 1896.

Originated in Kansas; introduced about 1892. Perfect. Plants numerous, vigorous, hardy and productive; fruit medium in size, irregular round-conic, light scarlet; flesh light red, soft; fair; early.

Early Jersey Giant. 1. *N. Y. Sta. Bul.* **401**:176. 1915.

Originated in 1907 by Walter Van Fleet, then of Little Silver, New Jersey. Perfect. On the Station grounds, plants medium to numerous, large, vigorous, very productive, healthy; fruit-stems thick, erect; fruit large, oblong-conic to wedge, necked, dull medium red, not very juicy, coarse, sweet, not highly flavored; fair; early.

Early Market. 1. *Ohio Sta. Bul.* **166**:72. 1905.

Originated with Louis Hubach, Judsonia, Arkansas; introduced in 1903. Perfect. Plants numerous, tall, vigorous; fruit of medium size, short-conic, light crimson; flesh medium red, soft; fair; early.

Early Miller. 1. *Md. Sta. Bul.* **160**:209. 1911.

A chance seedling which originated with Mrs. E. M. Kelly, Wicomico County, Maryland; introduced in 1910. Plants vigorous; fruit medium in size, round-conic, bright scarlet; flesh red, medium firm, juicy, mildly subacid; good; early.

Early Queen. 1. *Gard. Mon.* **16**:279. 1874.

A seedling of Metcalf raised by Amos Miller, Carlisle, Pennsylvania; introduced in 1874. Perfect. Plants medium in vigor and productivity; fruit large, round-conic, bright crimson; good; early.

Early Queen (of Townsend). 1. *N. Y. Sta. Bul.* **401**:177. 1915.

A seedling of unknown parentage which originated with E. W. Townsend, Jr., Salisbury, Maryland, in 1908. Perfect. In the Station beds, plants very numerous and vigorous, very productive, healthy; fruit-stems short, prostrate; fruit large, blunt-wedge to roundish, with a rough surface, glossy light red, colors unevenly, very juicy, tender, subacid, with dark red flesh; fair; midseason.

Early Robbins. 1. *Va. Sta. Tech. Bul.* **11**:30. 1916.

Originated with George M. Robbins, Bradford, Maine; introduced about 1898. Perfect. Plants few; fruit below medium in size, round-conic, dark crimson; flesh medium firm, sweet; fair; early.

Easypicker. 1. *Minn. Hort. Soc. Rpt.* 226. 1921.

A cross between Dunlap and Crescent originated at the Minnesota Fruit Breeding Farm, Excelsior, Minnesota; named in 1921. Imperfect. Plants at this Station very numerous, vigorous, low growing, very productive, healthy; leaves small, dark green; flowers small; receptacle large for the size of the flower; fruit-stems short, erect; calyx small, raised; fruit above medium to small, chunky conic, necked, glossy dark red, juicy, medium firm, subacid; fair; early.

Eaton. 1. Whitten *Cat.* 2. 1920.

A chance seedling found in an orchard by A. V. Eaton, Lafayette, Indiana, in 1913. Eaton has shown considerable merit at this Station. Semi-perfect to perfect. At this Station, plants numerous, very vigorous, productive, healthy; leaves large, dark green; flowers small; receptacle large for the size of the flowers; fruit-stems long, thick, semi-erect; calyx small, flat; fruit large to medium, blunt-wedge to blunt-conic, glossy medium red, very juicy, firm, sweet, with dark red flesh; good to very good; midseason.

Eberlein. 1. *Horticulturist* **3**:70. 1848–49.

Originated with a Mr. Eberlein, Ohio; introduced in 1847. Perfect. Plants very productive; fruit medium in size, conic, dark scarlet; early.

Echo. 1. *Mich. Sta. Bul.* **189**:112. 1901. 2. *N. Y. Sta. Bul.* **309**:522. 1908.

Introduced in 1901 by the Woodlawn Nurseries, Rochester, New York, who secured their plants from a grower near Cape Cod, Massachusetts. Echo is the leading variety in the Falmouth region in Massachusetts, where it is liked because of its productiveness, the stiff, upright fruit-stems, and the firmness of the fruit. Perfect. Station plants medium in number and yield, vigorous; fruit-stems thick, erect; fruit large to medium, drops in size,

round-conic, dull red, juicy, firm, pleasant in flavor, with whitish flesh; good to very good; midseason.

Eclipse. 1. Fuller *Sm. Fr. Cult.* 92. 1867.

Originated by William Prince, Flushing, New York; introduced about 1855. Imperfect. Fruit small, conic, light bright crimson; flesh briskly subacid; good; season early, very short.

Edgar Queen. 1. *Mich. Sta. Bul.* **81**:7. 1892. 2. *N. H. Sta. Bul.* **74**:99. 1900.

Originated in 1884 with B. O. Curtis, Paris, Illinois, as a seedling of Captain Jack. Imperfect. Plants numerous, vigorous, moderately productive; fruit large, irregular roundish, light scarlet; flesh light red, medium firm; good; late midseason.

Edith. 1. *Mich. Sta. Bul.* **130**:150. 1896.

A chance seedling which originated with Mark T. Thompson, Rio Vista, Virginia; introduced about 1892. Imperfect. Plants medium in number, vigor, and productivity; fruit medium in size, round-conic, very dark crimson; flesh medium firm; good; late.

Edmund Wilson. 1. Lovett *Autumn Cat.* 3. 1913. 2. *N. Y. Sta. Bul.* **447**:68. 1918.

Originated by Walter Van Fleet, Little Silver, New Jersey, in 1907 by intercrossing several European and American sorts. Perfect. On the Station grounds, plants numerous, very vigorous, healthy, productive; leaves unusually large and dark green; flowers very large, often nearly two inches across; fruit-stems short, thick; calyx of largest size; fruit large, retains size well, irregular-conic, broad at the base, dull dark red, medium juicy, firm, subacid, with dark red flesh; fair; midseason.

Edwards. 1. *Va. Sta. Tech. Bul.* **11**:31. 1916.

Originated in 1896 with B. M. Edwards, Franklin, New York, as a chance seedling. Imperfect. Plants numerous; fruit of medium size, wedge-shape to round-conic, dark crimson; flesh medium red, firm, acid; fair; midseason.

Edwards Favorite. 1. *Ann. Hort.* 201. 1892. 2. *N. Y. Sta. Bul.* **64**:7. 1894.

A chance seedling discovered in 1885 by R. S. Edwards, Highlands, Colorado. Thought to be a cross between Sharpless and Jucunda. Perfect. In the Station beds, plants medium to vigorous, numerous, moderately productive, with good fruit-stems; fruit medium to large, good red color, round-conic, soft, sweet; good; midseason to late.

Effie. 1. *Ohio Sta. Bul.* **166**:72. 1905.

A chance seedling which originated in 1899 with Miss Effie Wiley, Dover, Delaware; introduced in 1903. Perfect. Fruit of medium size, conic, scarlet; flesh whitish, soft; fair; midseason.

Ekey. 1. *Ohio Sta. Bul.* **154**:35. 1904. 2. *N. Y. Sta. Bul.* **309**:523. 1908.

Originated in 1898 with E. H. Ekey, Steubenville, Ohio, as a cross between Warfield and Belmont. Perfect. Plants at this Station of medium number and vigor, unhealthy, productive; fruit-stems short, thick; fruit large to medium, retains size well, very long-conic, dull dark red, green tipped; flesh dark red, acid, with an unpleasant flavor; poor; early.

Elate. 1. Johnson *Cat.* 6. 1922.

Introduced in 1917 by E. W. Johnson & Company, Salisbury, Maryland. Plants numerous, large, vigorous; fruit large, attractive red, firm.

Eldorado.

Plants were sent to this Station in 1916 from King Brothers Nursery, Dansville, New York. Said to have originated in Kansas. Similar to Splendid. Semi-perfect to perfect. At this Station, plants numerous, vigorous, healthy, very productive; receptacle prominent; fruit large, variable in shape, broad at the base, glossy light red, juicy, firm, subacid, with whitish flesh; good; medium early.

Eleanor. 1. *Mag. Hort.* **14**:219. 1848.

Myatt's Eleanor. 2. Thompson *Gard. Ass't* 572. 1859.

Crystal Palace. 3. Downing *Fr. Trees Am.* 985. 1869.

Originated by a Mr. Myatt, Deptford, England, in 1847; introduced into this country a few years later. Although never grown extensively, it was mentioned frequently in pomological literature. Long a popular sort near London, England. Perfect. Plants numerous, vigorous, hardy and moderately productive; fruit large, long-conic, bright scarlet; flesh red, firm, juicy, acid; good; late.

Eleanor (of Coombe). 1. *N. Y. Sta. Bul.* **109**:235. 1896.

A chance seedling which originated with a Mr. Coombe, Atlantic County, New Jersey; introduced in 1895. Perfect. Station plants vigorous, numerous, variable in yield; fruit medium or above, roundish, bright red, firm; good; early.

Eliza. 1. Downing *Fr. Trees Am.* 680. 1857.

Myatt's Eliza. 2. *Mag. Hort.* **7**:71. 1841.

Raised by a Mr. Myatt, Deptford, England, about 1837; introduced into this country a few years later. It was never cultivated much outside of the gardens of amateurs. Eliza (of Rivers) was also tested here about 1860. Perfect. Plants few, vigorous, unproductive; fruit large, ovate or conic, necked, scarlet; flesh light scarlet, juicy; good.

Elma. 1. *N. Y. Sta. Bul.* **218**:196. 1902.

Originated in 1900 by J. H. Black, Son & Company, Hightstown, New Jersey, by crossing a seedling of Robbie and Nettie, with Joe. In 1898 another variety was sent out by them under this name, but it did not prove satisfactory and the name was transferred to the sort herein described. Imperfect. Station plants very few, medium in vigor, healthy, not productive; fruit-stems prostrate; fruit large to medium, retains size well, roundish to wedge, light red, colors unevenly, firm, sprightly, well flavored; good; late.

Elmira. 1. *Ohio Sta. Bul.* **236**:220. 1912.

Originated with G. A. Parcell, Pine City, New York; introduced in 1910. Imperfect. Plants very numerous, vigorous, productive; fruit medium in size, conic to wedge-shape, scarlet to crimson; flesh dark red, firm, mild; good; early.

Elton. 1. Downing *Fr. Trees Am.* 529. 1845. 2. *Pom. Mag.* **3**:135, Pl. 1830.

Elton Pine. 3. Hoffy *Orch. Comp.* Pl. 1841.

Originated in 1819 by Thomas Andrew Knight, Downton Castle, Wiltshire, England;

introduced into this country a few years later where it was much grown from 1825 to 1845. It is still valued in England for preserving. Perfect. Plants vigorous, not fully hardy, productive; fruit large, ovate to coxcombed, dark glossy red; flesh dark red, firm, juicy, acid; very good; very late.

Emerald. 1. *Can. Exp. Farm Bul.* 5:14. 1889.

Introduced about 1887; said to have originated in Europe. Perfect. Plants lacking in vigor; foliage very subject to rust; fruit medium in size, irregular, round-conic, light red; flesh medium firm; fair; midseason.

Emily. 1. Fuller *Sm. Fr. Cult.* 92. 1867.

Originated by G. W. Huntsman, Flushing, New York; introduced in 1864. Imperfect. Fruit large, roundish, scarlet; flesh whitish, sweet; very good.

Emily (of Thomas). 1. *Va. Sta. Tech. Bul.* 11:32. 1916.

Originated by W. H. Thomas, Highwood, Connecticut; introduced in 1885. Imperfect. Fruit medium in size, round-conic, dark crimson, firm.

Emma. 1. *Mich. Hort. Soc. Rpt.* 168. 1882.

Introduced about 1870. Perfect. Plants numerous, vigorous, moderately productive; fruit of medium size, roundish conic, scarlet, soft, juicy, acid; good.

Emperor. 1. *Am. Gard.* 20:510. 1899. 2. Ont. Dept. Agr. *Fr. Ont.* 306. 1914.

Originated by John Little, Granton, Ontario, in 1890. Perfect. Plants medium in number, vigorous, healthy, productive; fruit very large, conic, sometimes ribbed, dark red; flesh reddish pink, firm; good; late midseason.

Empress. 1. *Am. Gard.* 20:510. 1899. 2. Ont. Dept. Agr. *Fr. Ont.* 306. 1914.

Originated in 1890 by John Little, Granton, Ontario. Perfect. Resembles Emperor. Plants medium in number, vigorous and productive; fruit medium to large, irregular round-conic, dark red; flesh light red, soft, sweet; good; late midseason.

Endicott. 1. *Mich. Hort. Soc. Rpt.* 167. 1882.

Originated in 1870 by G. W. Endicott, Villa Ridge, Illinois, as a cross between Wilson and Jucunda. Perfect. Plants numerous, vigorous and productive; fruit large, blunt-conic, necked, dull scarlet; flesh medium firm, juicy, mildly subacid; late midseason.

Enhance. 1. *Rural N. Y.* 47:460. 1888. 2. *N. Y. Sta. Bul.* 24:332. 1890.

A cross between Windsor and Sharpless raised by Henry Young, Ada, Ohio; introduced in 1887. It has value in certain sections for the general market. Enhance was placed in the catalog of the American Pomological Society in 1897, where it remained in the last catalog in 1909. Perfect. As grown here, plants few, vigorous, very productive, with short, erect fruit-stems; fruit large, conic, glossy red, firm, subacid; very good; late.

Enormous. 1. *Rural N. Y.* 55:498. 1896. 2. *N. Y. Sta. Bul.* 109:235. 1896.

A seedling of Crescent which originated with B. O. Curtis, Paris, Illinois; introduced in 1895. Added to the catalog of the American Pomological Society in 1899 where it remained in the last catalog in 1909. Imperfect. Station plants numerous, medium in yield, with good foliage; fruit large to very large, irregular wedge, bright red, firm; fair; late.

Epping. 1. *N. Y. Sta. Bul.* **76**:434. 1894.

Yankee Doodle. 2. *Mich. Sta. Bul.* **100**:14. 1893.

Dow's Seedling. 3. *N. Y. Sta. Bul.* **64**:7. 1894.

Originated with George F. Dow, North Epping, New Hampshire; introduced about 1890 as Yankee Doodle, and later as Epping under which name it was more generally known. Imperfect. On the Station grounds, plants medium in number and yield, with tender foliage and good fruit-stems; fruit of medium size, round-conic, dark red, soft; good; midseason.

Equinox. 1. *N. Y. Sta. Bul.* **91**:191. 1895.

Originated with Mark T. Thompson, Rio Vista, Virginia; introduced in 1895. A very productive sort but of inferior quality. Perfect. Plants at this Station, medium vigorous, numerous, very productive, with good fruit-stems; fruit medium to large, dull red, round-conic, firm; poor; late.

Ernest. 1. *Penn. Sta. Rpt.* 216. 1898–99.

Originated with R. E. Rodgers, Snyder Creek, Pennsylvania; introduced about 1900. Perfect. Plants numerous, vigorous; foliage resistant to leaf-spot; fruit large, round-conic, bright crimson; flesh medium red, firm; good; midseason.

Ernest (of Townsend). 1. *N. Y. Sta. Bul.* **401**:177. 1915.

A seedling of unknown parentage which originated with E. W. Townsend, Salisbury, Maryland, in 1907. Imperfect. At this Station, plants vigorous, productive, healthy; fruit large to medium, broad, blunt-wedge, glossy light red, subacid, medium juicy, moderately firm; fair; midseason.

Ernie. 1. *Am. Gard.* **25**:436. 1904. 2. *N. Y. Sta. Bul.* **276**:70. 1906.

A chance seedling which originated with Dr. S. Mandlin, Bridgman, Michigan, in 1895. Its high quality makes it worthy of trial. Perfect. Station plants medium in number, variable in health, productive, vigorous; fruit-stems thick, prostrate; calyx leafy, detaches easily; fruit above medium to large, drops in size, variable in shape, glossy dark red, sprightly, firm, well flavored, with dark red flesh; good to very good; medium early.

Essex County. 1. *Rural N. Y.* **47**:195, fig. 67. 1888.

Originated with H. H. Alley, Hilton, New Jersey; introduced about 1887. Perfect. Plants vigorous, healthy, productive; fruit large, irregular, ovate, dark scarlet; flesh medium red, acid; good; early.

Estelle. 1. *U. S. D. A. Pom. Rpt.* 393. 1891.

Originated with C. Engle, Paw Paw, Michigan; introduced in 1891. Perfect. Fruit medium in size, round-conic, light crimson; flesh soft; good.

Ettersburg Seedlings. 1. *N. Y. Sta. Bul.* **401**:177. 1915.

Albert F. Etter, Ettersburg, California, sent out in 1913 a number of seedlings originated by him in 1905 between native California strawberries and various named varieties. The following have fruited at this Station, and all except the last five are described in Bulletin 401 of this Station: Nos. 71, 75, 76, 79, 80, 84, 88, 89, 91, 93, 94, 111, 112, 114, 116, 121, 222, 284, 432, 433, 450.

Eureka. 1. *Mich. Sta. Bul.* **55**:7. 1889. 2. *N. Y. Sta. Bul.* **76**:434. 1894.

A seedling of Cumberland which originated in 1881 with George Townsend, Gordon, Ohio. Inferior to standard sorts. The name was added to the American Pomological Society's catalog in 1891, where it remained in the last catalog in 1909. Imperfect. On the Station grounds, plants very vigorous, healthy, very numerous, moderately productive; blossoms with Sharpless; fruit shaped like Sharpless, large, very glossy bright red, very firm; good; late.

Eureka (of Hubach). 1. *N. Y. Sta. Bul.* **447**:68. 1918.

Originated in 1910 with Louis Hubach, Judsonia, Arkansas, as a cross between one of his seedlings and Klondike. Perfect. As grown here, plants medium in number, size, and vigor, healthy, very productive; flowers very early, large, show above the foliage; fruit-stems short, thick, erect; fruit large to medium, wedge, glossy dark red, juicy, firm, often with a hollow center, sprightly, with dark red flesh; good; very early.

Eurisko. 1. Etter *Cat.* 22. 1920.

Raised by Albert F. Etter, Ettersburg, California, in 1912 as a cross between Chesapeake and his seedling No. 20. Perfect. In the Station beds, plants unusually numerous, medium in vigor, productive, healthy; autumn-bearing; leaves rich dark glossy green, thick; flowers very late, large; fruit-stems long; seeds distinctly raised; fruit uniformly above medium in size, blunt-wedge to conic, with poorly developed apex, attractive dark red, juicy, subacid, with dark red flesh; fair; very late.

Evans. 1. *N. Y. Sta. Bul.* **147**:185. 1898.

Originated with G. R. Evans, Wicomico County, Maryland; introduced about 1896. Perfect. Plants numerous, vigorous, medium productive; fruit large, round-conic, light scarlet; flesh light red, soft, acid; good; midseason.

Evening Star. 1. *Mo. Sta. Bd. Hort. Rpt.* 290. 1909. 2. *Ohio Sta. Bul.* **364**:77. 1923.

Originated in 1902 with James Sons, Seligman, Missouri. Perfect. Plants numerous, vigorous, healthy and moderately productive; fruit large, round to blunt wedge-shape, light red; flesh light red, firm, acid; good; late.

Everbearer. 1. *Mich. Sta. Bul.* **206**:52. 1903.

Introduced in 1893 by John A. Salzer, La Crosse, Wisconsin, as an "everbearer." Perfect. Plants few, weak; fruit small, regular, round-conic, dark scarlet, pleasant in flavor; early to late.

Evergreen. 1. *Ohio Sta. Bul.* **166**:72. 1905.

Originated by Louis Hubach, Judsonia, Arkansas; introduced in 1903. Perfect. Plants numerous, very vigorous, moderately productive; fruit medium in size, long-conic, bright crimson; flesh red, medium firm, fair; early midseason.

Ewell. 1. *Md. Sta. Bul.* **211**:67. 1918.

A chance seedling which originated with a Mr. Ewell, Accomac County, Virginia. Perfect. Plants numerous, medium in vigor; fruit of medium size, round-conic, bright attractive red; flesh red, medium firm, juicy, subacid; fair; early.

Excelsior. 1. *Ohio Sta. Bul.* **154**:35. 1904. 2. *N. Y. Sta. Bul.* **309**:524. 1908.

This old sort is still prized in many parts of the United States for its early, well-flavored berries which keep and ship particularly well. It is one of the few varieties with a distinctly sour berry that finds favor with consumers. The berries are small, dark red in color and ripen very early. The small size and acid fruits are the chief defects of the product. The plants are often injured by drouth and in many situations are unproductive. They do best grown in hills. Excelsior is giving way, in commercial plantations at least, to Howard. This variety originated about 1890 with Louis Hubach, Judsonia, Arkansas; introduced by J. C. Bauer of that place in 1892; parentage Hoffman by Wilson; added to the American Pomological Society's fruit catalog in 1899.

Perfect. Plants numerous, healthy, productive; leaves small, light green, dull, rugose, Flowers very early, small; petals 6–8; stamens variable in number; receptacle small. Fruit very early; fruit-stems short, prostrate; pedicels short, slender; calyx small, variable in position, often discolored; sepals short, narrow; berries medium to small, round-conic or globose; apex obtuse; color light to dark red, moderately glossy; seeds sunken; flesh usually dark red but variable, firm, juicy, decidedly tart; quality fair.

Excelsior (of Shaw). 1. *Rural N. Y.* **55**:498. 1896.

Originated with James Shaw, South Hadley, Massachusetts; introduced in 1895; supposed to be a cross between Duchess and Crescent. Plants productive; fruit large, conical heart-shaped, soft; fair.

Exquisite. 1. Burbank *Cat.* 12. 1916–17.

Raised about 1910 by Luther Burbank, Santa Rosa, California, as a descendant of one of his white seedling strawberries, a Chilian seedling, and Bubach. Perfect. Plants at this Station, very few, weak, low growing and dwarfish, very unproductive, healthy; flowers large, with the petal-edges recurved; fruit-stems short, erect; fruit variable in size and shape, unattractive pale red; flesh soft, very white; very good; very late.

Fae. 1. *Ohio Sta. Bul.* **236**:220, fig. 1912.

Originated with W. J. Alt, Lancaster, Ohio; introduced in 1908. Imperfect. Plants vigorous, productive; fruit large, blunt conical to broad wedge-shape, medium red; flesh light red, juicy, firm; good; midseason.

Fairdale. 1. *Md. Sta. Bul.* **211**:67. 1918.

Originated in 1905 with J. G. Harrison & Sons, Berlin, Maryland. Perfect. Plants moderately vigorous; berries large, roundish wedge-shaped, blunt, bright scarlet; flesh light red, firm, juicy, subacid; fair; midseason.

Fairfield. 1. *Ohio Sta. Bul.* **146**:32. 1903. 2. *N. Y. Sta. Bul.* **309**:524. 1908.

A chance seedling found in an old peach orchard about 1895 by Martin Johnson, Cumberland County, New Jersey. Perfect. Station plants medium in number, vigorous, healthy, unproductive; fruit large, drops rapidly in size, round-conic to long-conic, glossy light to dark red, mildly acid, medium firm, inferior in flavor; fair; early. Its earliness is its greatest asset; disappointing in yield and flavor.

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Fairmount. 1. *U. S. D. A. Pom. Rpt.* 393. 1891.

Introduced in 1891 by Oakley Apgar, Califon, New Jersey. Perfect. Berries large, conic, dark crimson; flesh dark red, moderately firm, subacid; very good; midseason.

Family Favorite. 1. *Rural N. Y.* **58**:530. 1899.

Originated with Charles W. Momm, Irvington, New Jersey; introduced in 1898. Semi-perfect. Berries medium in size, round-conic, dark scarlet, firm, acid; good; midseason.

Fantastic. 1. *Am. Pom. Soc. Rpt.* 166. 1920.

Originated with Albert F. Etter, Ettersburg, California. Plants strong, vigorous; berries deepest red, fantastic shaped.

Farnsworth. 1. *N. Y. Sta. Bul.* **24**:332. 1890.

Originated with W. W. Farnsworth, Waterville, Ohio. Perfect. As grown here, plants vigorous, very numerous, not free from leaf-spot, productive; fruit conical, necked, light red, uniformly medium in size, too soft for shipping, very well flavored; very good; midseason.

Felton. 1. *N. Y. Sta. Bul.* **24**:332. 1890.

Originated with Oscar Felton, Merchantsville, New Jersey; introduced about 1888. Perfect. On the Station grounds, plants very vigorous, productive; fruit large, holds up in size, obtuse-conic, glossy dark red, firm, well flavored; very good; late, with long-ripening period.

Fendalcino. 1. *Am. Pom. Soc. Rpt.* 291. 1921.

Originated as a cross between Fendall and Ettersburg No. 121 by Albert F. Etter, Ettersburg, California. Imperfect. Berries large, bright red, moderately firm; good; early, with a tendency to be a double-cropper.

Fendalemo. 1. *Am. Pom. Soc. Rpt.* 166. 1920.

A seedling of Fendall originated by Albert F. Etter, Ettersburg, California. Plants vigorous; berries large, deep red; good.

Fendall. 1. *Am. Pom. Soc. Cat.* 50. 1909. 2. *N. Y. Sta. Bul.* **336**:55. 1911.

A seedling of Belt originated in 1905 by Charles E. Fendall, Towson, Maryland; entered in the fruit catalog of the American Pomological Society in 1909. Perfect. In the Station beds, plants few, medium in size and vigor, healthy, productive; fruit large, retains size well, characteristically oblong-conic, necked, glossy light red, medium in juiciness and firmness, subacid; good; midseason. Lacks vigor and inferior in shape.

Ferndale Giant. 1. *Ohio Sta. Bul.* **364**:77. 1923.

Introduced by T. C. Kevitt, Athenia, New Jersey, in 1912. Perfect. Plants vigorous, healthy; berries large, long-conical to wedge-shape, variable in color, usually crimson, firm, sweet; good; midseason.

Fifer. 1. *Va. Sta. Tech. Bul.* **11**:35. 1916.

Gen. Fifer. 2. *Mich. Hort. Soc. Rpt.* 316. 1897.

Originated with C. C. Stone, Moline, Illinois; introduced about 1892. Perfect. Berries medium in size, round-conic, bright crimson; flesh light red, firm; good; late.

Fillbasket. 1. *N. Y. Sta. Bul.* **401**:180. 1915.

Received at this Station in 1910 from Vilmorin-Andrieux Nursery Company, Paris, France. Perfect. Berries medium in size, oblong-conic to wedge, dull light red; flesh whitish, sweet; good; late.

Fillmore. 1. *Mag. Hort.* **25**:347. 1859.

Feast's Fillmore. 2. *Country Gent.* **20**:30. 1862.

Originated in 1852 with Samuel Feast & Sons, Baltimore, Maryland; included in the American Pomological Society's fruit catalog from 1862 to 1879. Perfect. Plants vigorous, healthy, productive; berries large, round-conic, obtuse, dark crimson, firm, sweet; good; early.

Finch. 1. *Mich. Hort. Soc. Rpt.* 193. 1883.

Finch's Prolific. 2. *Gard. Mon.* **23**:241. 1881.

Originated in 1874 by Lewis Finch, Plainville, Ohio. Wilson is supposed to have been one of the parents. The American Pomological Society listed the variety in its fruit catalog from 1883 to 1897. Perfect. Berries large, round-conic, scarlet, firm; good; midseason.

First Prize. 1. *Md. Sta. Bul.* **160**:201, 210. 1911. 2. *N. Y. Sta. Bul.* **401**:181. 1915.

A chance seedling originated in 1905 by E. M. Ruark, Sharptown, Maryland; introduced by E. W. Townsend & Sons, Salisbury, Maryland, in 1910. Perfect. Plants at this Station, medium in number and vigor, very productive, healthy; fruit-stems thick, prostrate; fruit very large, irregular wedge, with furrowed surface, light red, colors unevenly, green tipped, not very juicy, coarse, subacid; fair; early. Unattractive in shape, coarse in appearance, surpassed by other kinds.

First Quality. 1. *N. Y. Sta. Bul.* **336**:55. 1911

A seedling of Gandy and Sample, which originated with J. D. Gowing, North Reading, Massachusetts; introduced by C. S. Pratt, Reading, Massachusetts, in 1909. Perfect. At this Station, plants few, large, vigorous, healthy, medium in yield; leaves large, thick, dark green; flowers midseason, large; fruit-stems long, thick; calyx leafy, flat; seeds sunken; fruit large, retains size well, distinctly conic, glossy medium red, medium juicy, firm, sweet; very good; midseason. Worthy of trial.

Fisher. 1. *Va. Sta. Tech. Bul.* **11**:35. 1916.

Prof. Fisher. 2. *Rural N. Y.* **58**:514. 1899. 3. *N. Y. Sta. Bul.* **309**:541. 1908.

Originated by J. H. Black, Son & Company, Hightstown, New Jersey; introduced in 1899. Imperfect. Station plants few, vigorous, healthy, productive; leaves very large; fruit-stems medium to long, semi-erect; calyx often raised on a swollen neck; fruit large, retains size well, irregular wedge, with furrowed surface, light red, coarse in appearance, moderately firm, acid; fair to good; late.

Fleming. 1. *Country Gent.* **22**:46. 1863.

Originated in 1859 with F. A. Fleming, Curwensville, Pennsylvania, as a cross between McAvoy Superior and Wilson. Imperfect. Berries large, round-conic, obtuse, dark scarlet, soft, sweet; good.

Flora Bell.

Hall's Seedling. **1.** *N. Y. Sta. Bul.* **64**:8. 1894.

Originated by S. E. Hall, Cherry Valley, Illinois, about 1890. Imperfect. Station plants medium numerous, less productive than Sharpless but more so than Crescent, with very good foliage and good fruit-stems; blossoms about with Manchester and Sharpless; fruit medium in size, firm; fair; midseason.

Florella. **1.** *Ill. Hort. Soc. Rpt.* 293. 1905. **2.** *N. Y. Sta. Bul.* **309**:525. 1908.

Originated in 1896 by J. P. H. Brown, Augusta, Georgia, as a cross between Bubach and Thompson; introduced in 1904. Perfect. As grown here, plants few, medium in vigor, healthy, unproductive; fruit-stems short, thick, prostrate; berries variable in size and shape, glossy medium red, firm, acid, not high in flavor; fair; early. Not equal to the best varieties.

Florence. **1.** *Va. Sta. Tech. Bul.* **11**:35. 1916.

Clara. **2.** *Rural N. Y.* **50**:528. 1891.

Originated by Mark T. Thompson, Cleveland, Ohio; introduced in 1889. Perfect. Berries medium in size, round-conic, bright scarlet; flesh light red, firm; fair; midseason.

Flush. **1.** *Va. Sta. Tech. Bul.* **11**:35. 1916.

Flosch. **2.** *Am. Gard.* **19**:642. 1898.

Flash. **3.** *Mich. Sta. Bul.* **189**:117. 1901.

Originated by Thomas Wilde, Wright, Michigan; introduced about 1896. Imperfect. Berries large, irregular, round-conic, dark crimson; flesh dark red, firm; very good; midseason.

Ford. **1.** *N. Y. Sta. Bul.* **447**:69. 1918.

A chance seedling found growing wild about 1913 by a Mr. Granville, Brewington, Maryland. Semi-perfect to perfect. On the Station grounds, plants numerous, extremely vigorous, healthy, very productive; leaves of largest size, very thick, dark green; flowers very late, large; fruit-stems very long, thick, erect; calyx unusually large, flat, very leafy, attractive green, with long, broad sepals; berries of largest size, blunt-wedge to blunt-conic, glossy medium to dark red, coloring unevenly, very juicy, firm, sweet, with dark red flesh; good; very late. Worthy of trial. Since its introduction other plants have been sold for Ford, entirely unlike the variety just described.

Forest Rose. **1.** *Gard. Mon.* **19**:274. 1877.

A chance seedling which originated in 1869 with J. A. Fetters, Lancaster, Ohio; included in the American Pomological Society's fruit catalog from 1877 to 1883. Perfect. Plants vigorous, productive; berries large, round-conic, obtuse, scarlet; flesh light red, firm, sweet; good; early.

Fort. **1.** *Va. Sta. Tech. Bul.* **11**:36. 1916.

Gov. Fort. **2.** *N. Y. Sta. Bul.* **401**:182. 1915.

Originated as a cross between Sample and Glen Mary by T. C. Kevitt, Athenia, New Jersey, in 1906. Perfect. At this Station, plants few, medium in vigor, productive,

healthy; fruit-stems long, thick, prostrate; fruit above medium in size, long-wedge to long-conic, dull light red; flesh whitish, medium juicy, subacid, very mild, low in flavor; poor; midseason. Surpassed by other varieties.

Forward. 1. *N. Y. Sta. Bul.* **447**:69. 1918.

An autumn-bearer originated in 1907 by Samuel Cooper, Delevan, New York, as a cross between Autumn and Cooper. This variety is so similar in both plant and fruit habits to Advance that the description of Advance will answer for both varieties.

Fountain. 1. *Am. Gard.* **18**:536. 1897. 2. *Ia. Sta. Bul.* **64**:191, 196, 202. 1902.

Originated in Ohio; introduced in 1895. Perfect. Berries large, round-conic, dark crimson; flesh dark red, firm, acid; good; midseason.

Four Seasons. 1. *N. Y. Sta. Bul.* **401**:181. 1915.

Received at this Station in 1910 from Vilmorin-Andrieux Nursery Company, Paris, France. Perfect. Plants weak, unproductive; berries small, conic, whitish, unattractive, tart, insipid; poor; midseason.

Frances Cleveland. 1. *Va. Sta. Tech. Bul.* **11**:36. 1916.

Mrs. Cleveland. 2. *N. Y. Sta. Bul.* **24**:338. 1890.

A seedling of Cumberland; originated in 1881 by George Townsend, Gordon, Ohio. Imperfect. Berries large, irregular round-conic, bright scarlet; flesh light red, firm; good; midseason.

Frances Willard. 1. *N. Y. Sta. Bul.* **447**:69. 1918.

Seeds of an unnamed seedling were sown in 1910 by D. J. Miller, Millersburg, Ohio. One of the resulting plants was named Frances Willard. Imperfect. As grown here, plants very numerous, vigorous, healthy, very productive; leaves unusually large, thick, dark green; fruit-stems long, thick; calyx distinctly raised; fruit large, retains size well, long-conic to long-wedge, strongly necked, light red, medium juicy, firm, subacid; fair to good; midseason. Flesh characters disappointing.

Francis. 1. *Ia. Hort. Soc. Rpt.* 335. 1911. 2. *Ohio Sta. Bul.* **364**:91. 1923.

Originated in 1905 by Harlow Rockhill, Conrad, Iowa, as a cross between Louis Gauthier and Pan American. Perfect. Station plants few, vigorous, healthy, variable in yield; autumn-bearing; fruit-stems long, slender, prostrate; fruit above medium to small, round-conic, light red, firm, subacid, juicy; good; midseason. The new runner-plants blossom as soon as rooted.

Free Silver. 1. *Rural N. Y.* **56**:471. 1897.

Originated by T. C. Kevitt, Athenia, New Jersey, as a cross between Bubach and Parker Earle. Perfect. Plants moderately vigorous; berries medium in size, long-conic, dark crimson, soft; good; midseason.

Fremont Williams. 1. *Ohio Sta. Bul.* **166**:73, fig. 1905.

Originated in 1893 by Louis Hubach, Judsonia, Arkansas, as a cross between Gandy and Bush Cluster. Perfect. Plants large, vigorous; berries large, round-conic, light crimson, firm, subacid; good; late.

French. 1. *Country Gent.* **22**:367. 1863.

French's Seedling. 2. *Gard. Mon.* **10**:238. 1868.

Originated about 1858 by Lewis French, Moorestown, New Jersey, as a seedling of Hovey; a standard market sort late in the sixties. Perfect. Plants medium in size and vigor, productive; berries medium to large, round-conic, light scarlet; flesh light red, soft, sweet; good; early.

Friendship. 1. *N. Y. Sta. Bul.* **447**:69. 1918.

This is a seedling of Maximus found by J. F. Nickerson, Chatham, Massachusetts, in 1912. Perfect. On the Station grounds, plants few, medium in vigor, very productive, injured by leaf-spot; fruit-stems short, thick, prostrate; fruit variable in size, long-wedge to long-conic, strongly necked, light red, dull, juicy, medium firm, tart, with an unpleasant flavor; poor; midseason. Plants unhealthy; fruit disappointing.

Fuller. 1. *Va. Sta. Tech. Bul.* **11**:36. 1916.

A chance seedling which originated with J. B. Fuller, Anna, Illinois; introduced in 1911. Perfect. Berries large, long-conic, dark crimson, firm; good; midseason.

Galceron. 1. *Mich. Sta. Bul.* **67**:4. 1890.

Galerson. 2. *N. Y. Sta. Bul.* **64**:8. 1894.

Originated in 1882 with a Mrs. Galceron, Atlanta, Georgia. Perfect. As grown here, plants vigorous, few, unproductive; leaves and fruit-stems good; fruit medium in size, symmetrical, attractive dark red, firm; poor; midseason to late.

Ganaugua. 1. *N. Y. Sta. Bul.* **147**:185. 1898.

A cross between Wilson and Sharpless raised by A. A. Mitchell, Palmyra, New York; introduced about 1896. Perfect. Plants medium in number, vigor, and productivity; fruit of medium size, roundish, scarlet; flesh medium firm; fair; midseason.

Gandy. 1. *N. Y. Sta. Bul.* **24**:332. 1890. 2. *Rural N. Y.* **61**:498. 1902.

Gandy's Prize. 3. *Col. O. Hort. Soc. Rpt.* 69. 1887.

First Season. 4. *Am. Gard.* **10**:342. 1889.

The outstanding qualities of Gandy are handsome, deep red, firm fruits of very good quality, although the variety finds favor in many localities because of its late season, the fruits reaching the market the last of their kind. The plants are partial as to soils and thrive best in heavy rather than light soils. The fruits hold their color when canned very well, but are a little too acid for a prime canned product. The variety is grown more or less wherever strawberries are cultivated in the United States. Gandy was originated in 1885 by W. S. Gandy, Newport, New Jersey, as a cross between Jersey Queen and Glendale; introduced in 1888; added to the fruit list of the American Pomological Society in 1889.

Perfect. Plants numerous, vigorous but low-spreading, variable in health, productive; leaves of medium size, thick, light green, dull, rugose. Flowers late, variable in size; petals 6–8, small; stamens very few to many; receptacle large. Fruit very late, holds up well in size; fruit-stems variable in length, thick, semi-erect to erect; pedicels short, slender; calyx large, raised, leafy, easily detached, well colored; sepals long, broad; berries large, round-conic; apex very obtuse; color light red at first, deepening to dark, rather dull red

at maturity; seeds raised; flesh well colored to the center, very firm, briskly subacid, juicy; core hollow; quality good.

Ganto. 1. *Va. Sta. Tech. Bul.* **11**:37. 1916.

Originated at the Maryland Agricultural Experiment Station, College Park, Maryland, in 1911. Berries medium, conic, flattened, dull crimson, soft; fair; late.

Garden. 1. *Mich. Hort. Soc. Rpt.* 167. 1882. 2. *N. Y. Sta. Bul.* **24**:332. 1890.

A seedling of Monarch which originated at Babylon, New York, about 1880. Perfect. In the Station beds, plants vigorous, numerous, variable in yield; fruit-stems long; good; season long.

Gardner. 1. *Am. Gard.* **17**:627. 1896. 2. *N. Y. Sta. Bul.* **147**:185. 1898.

A chance seedling which originated about 1887 with C. F. Gardner, Osage, Iowa. Perfect. Plants medium in number and vigor, unproductive; fruit of medium size, irregular round-conic, light scarlet; flesh firm, acid; fair; early midseason.

Garibaldi. 1. Downing *Fr. Trees Am.* 987. 1869.

Raised by W. A. Burgess, Glen Cove, New York; introduced before 1862. Perfect. Fruit medium in size, roundish blunt-conic, light scarlet; flesh soft, sweet; good; early.

Garretson. 1. *Mich. Hort. Soc. Rpt.* 241. 1886.

Originated with a Mr. Garretson, on Long Island, New York; introduced in 1884. Imperfect. At this Station, plants lack in vigor and productiveness; fruit-stems short; fruit medium to large, round-conic, dull dark red, very firm, subacid; poor; midseason, ripening period long.

Garrison. 1. *Md. Sta. Bul.* **160**:210. 1911.

Lady Garrison. 2. *Ohio Sta. Bul.* **166**:76. 1905.

Introduced about 1901. Perfect. Plants numerous, medium in vigor and productivity; fruit medium in size, irregular, oblong, light scarlet; flesh pink, medium firm; good; midseason.

Geisler. 1. *Ont. Fr. Exp. Sta. Rpt.* 61. 1901. 2. *Can. Exp. Farm Bul.* **63**:31. 1909.

A chance seedling found in Michigan; introduced in 1897. Perfect. Plants few, vigorous, unproductive; fruit large, roundish, dark glossy red; flesh red, firm, juicy, subacid; good; late.

Gem. 1. *Va. Sta. Tech. Bul.* **11**:38. 1916.

Originated in 1911 with A. F. Freeny, Wicomico County, Maryland. Perfect. Plants numerous; fruit large, dark crimson; flesh dark red, firm, mildly subacid; late.

General Meade. 1. *Mag. Hort.* **32**:273. 1866.

Originated with J. Keech, Waterloo, New York, as a cross between Russell and Triomphe; introduced in 1866. Fruit large, conic, light crimson; flesh firm; fair; midseason.

General Putnam. 1. *Ann. Hort.* 201. 1892. 2. *N. Y. Sta. Bul.* **64**:8. 1894.

Originated as a chance seedling in a bed of Cumberland and Crescent with J. E. Brown on the old Putnam farm, Brooklyn, Connecticut. Imperfect. As grown here, plants few, unproductive, with tender foliage; flowers very early; fruit-stems good; fruit medium to large, light red, round-conic, very soft, subacid; good; midseason.

GANDY

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General Scott. 1. Downing *Fr. Trees Am.* 988. 1869.

Originated by W. A. Burgess, Glen Cove, New York; introduced about 1862. Perfect. Plants vigorous and productive; fruit large, roundish, necked, light scarlet; flesh whitish, medium firm, subacid; good; early.

Genesee. 1. *Gen. Farmer* **12**:199. 1851. 2. Downing *Fr. Trees Am.* 674. 1857.

Raised by Ellwanger & Barry, Rochester, New York, as a seedling of Hovey; introduced by them in 1851. Perfect. Plants vigorous, moderately productive; fruit large, roundish oblate, necked, dark scarlet; flesh soft, juicy, mildly subacid; fair; late.

George Washington. 1. *Va. Sta. Tech. Bul.* **11**:38. 1916.

Listed in 1912. Fruit medium to large, long wedge-shape, crimson; flesh light red, mildly subacid; fair; early.

Georgia Mammoth. 1. Fuller *Sm. Fr. Cult.* 92. 1867.

Originated by Charles A. Peabody, Columbus, Georgia; introduced about 1860. Plants vigorous; fruit medium to small, blunt-conic, dark crimson; flesh very firm, acid; good; late.

Germantown. 1. Downing *Fr. Trees Am.* 674. 1857.

Originated with G. Young, Germantown, Pennsylvania; introduced about 1856. Perfect. Plants vigorous, very productive; fruit very large, regular, round-conic, dark crimson; flesh firm, sweet, highly flavored.

Gersonde. 1. *Mich. Sta. Spec. Bul.* **35**:14. 1906.

Originated with Henry Gersonde, Bridgman, Michigan, in 1900. Imperfect. Plants numerous, vigorous; fruit of medium size, roundish conic, bright red; flesh light red, firm, juicy, acid; good; late.

Gertrude. 1. *Mich. Hort. Soc. Rpt.* 316. 1897.

Originated with C. C. Stone, Moline, Illinois, in 1887, as a chance seedling. Perfect. Plants medium in number, vigorous, unproductive; fruit medium in size, round-conic, light crimson; flesh light red, medium firm; fair; early midseason.

Giant. 1. *Am. Gard.* **15**:335. 1894. 2. *N. Y. Sta. Bul.* **91**:191. 1895.

A chance seedling which originated with Joseph Bailey, Marlboro, New York; introduced in 1893. Perfect. On the Station grounds, plants vigorous, numerous, medium in yield; fruit-stems good; fruit medium to large, light red, medium firm; poor; late.

Giant (of Gardner). 1. *Va. Sta. Tech. Bul.* **11**:39. 1916. 2. *Ohio Sta. Bul.* **364**:78. 1923.

Originated with C. F. Gardner, Osage, Iowa; introduced in 1912. Said to be "a sport of Gardner." Perfect. Plants medium in size and vigor, very productive; fruit large, becoming small later in the season, round-conic to round-wedge, light red; flesh light red, soft, sweet; good; midseason.

Gibson. 1. *Am. Gard.* **20**:641. 1899.

Originated in 1895 with J. H. Gibson, Marlboro, New York, as a chance seedling. Perfect. At this Station, plants vigorous, healthy, productive; berries large, irregular, globular, slightly conical, dark glossy crimson; flesh dark red, firm, mildly subacid; good; midseason.

Gill. 1. *Ohio Sta. Bul.* **154**:39, Pl. 4. 1904. 2. *N. Y. Sta. Bul.* **309**:526. 1908.

A supposed cross between Beder Wood and a seedling of Bubach which originated about 1898 with E. H. Ekey, Steubenville, Ohio. Perfect. In some sections valued as an extra early sort for sandy soils. Perfect. In the Station beds, plants very few, weak, unhealthy in appearance, unproductive; fruit-stems thick; fruit medium to small, irregular in shape, medium red, moderately firm, mildly acid, low in flavor, whitish flesh; poor; very early.

Gillespie. 1. *Ann. Hort.* 210. 1891. 2. *N. Y. Sta. Bul.* **44**:143. 1892.

A seedling of Haverland which originated in 1886 with Samuel Gillespie, Butler County, Ohio. Perfect. Plants at this Station vigorous, few; fruit resembles Haverland in shape, but with longer neck and of lighter color; soft; of indifferent quality; midseason.

Gladstone. 1. *Rural N. Y.* **57**:450, 527, fig. 241. 1898. 2. *N. Y. Sta. Bul.* **309**:526. 1908.

A chance seedling, supposed to be of Sharpless, which originated about 1893 with F. F. Merceron, Catawissa, Pennsylvania. Perfect. At this Station, plants few, vigorous, healthy, unproductive; fruit-stems stout; fruit large, retains size well, wedge, glossy dark red, medium firm, mildly acid, with dark red flesh; good; late midseason.

Glastonbury. 1. *N. Y. Sta. Bul.* **336**:55. 1911.

A cross between Haverland and Great Scott raised by J. H. Hale, Glastonbury, Connecticut, in 1901. Semi-perfect. Station plants few, medium in size and vigor, healthy, unproductive; fruit conic, glossy medium red, large, very juicy, firm, tart; good; midseason.

Glauer. 1. *Mich. Sta. Bul.* **189**:115. 1901.

Originated with a Mr. Glauer of Colorado; introduced about 1890. Imperfect. Plants medium in number and vigor, productive; fruit medium to large, round-conic to wedge-shape, bright crimson; flesh medium red, medium firm, acid; good; midseason.

Glen Mary. 1. *U. S. D. A. Pom. Rpt.* 28. 1894. 2. *Rural N. Y.* **55**:514. 1896. 3. *N. Y. Sta. Bul.* **276**:70. 1906.

Once widely grown, Glen Mary is still prized in New York and New England for its productive plants and its handsome, well-flavored fruits. Several faults are causing it to be discarded in many strawberry regions. These are: The fruit-stems are too slender to hold the fruit off the ground; the foliage is susceptible to leaf-spot; the plants thrive only on very heavy and very fertile soils; and the blossoms are not self fertile, so that the fruits are often malformed. Glen Mary is still largely cultivated in the Hudson River Valley in this State. This sort was originated by J. A. Ingram, East Bradford, Pennsylvania, about 1890 as a chance seedling; introduced by W. F. Allen, Salisbury, Maryland, in 1896; placed in the American Pomological Society's fruit list in 1899.

Semi-perfect. Plants rather small, fairly vigorous, sometimes injured by leaf-spot, productive; leaves variable in size, dark green, thick, glossy, slightly rugose. Flowers early, rather large; petals 6–7; stamens few; receptacle large. Fruit midseason; fruit-stems variable in length and thickness, semi-erect to prostrate; pedicels long, thick; calyx medium to large, flat or slightly raised, often discolored; sepals long; berries large, irregular round-conic; apex often poorly pollinated, misshapen, irregular, obtuse; color dull red, often with whitish or light colored apex; seeds raised; flesh well colored to the center, firm, juicy, mildly subacid; quality good.

GLEN MARY

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Glen Saint Mary. 1. *Am. Pom. Soc. Rpt.* 209. 1902.

Originated in 1916 by W. M. Ventling, Glen Saint Mary, Florida, as a cross between Klondike and Nich Ohmer. Perfect. Plants large, very vigorous, productive; foliage healthy; fruit large, broad-conic, dark red; flesh red, firm; good; midseason.

Glendale. 1. *Ohio Hort. Soc. Rpt.* 83. 1876–77.

A chance seedling found in Glendale Cemetery, Akron, Ohio, by W. B. Storer in 1871. It was grown considerably as a late sort until superseded by Gandy, one of its seedlings. In 1879 Glendale was added to the catalog of the American Pomological Society from which it was removed in 1897. Perfect. Plants numerous, vigorous, hardy, and productive; fruit medium to large, round-conic, scarlet; flesh light red, firm, acid; good; late.

Glenfield. 1. *N. Y. Sta. Bul.* **76**:434. 1894.

A cross between Warren and Glendale, originated by James Stayman, Leavenworth, Kansas; introduced about 1891. Perfect. As grown here, plants vigorous, few, unproductive, with good fruit-stems; fruit medium in size, dark red, long-conic; flesh dark red; good; midseason.

Glenwood. 1. *N. Y. Sta. Bul.* **218**:197. 1902.

Grown at this Station prior to 1902. Perfect. On the Station grounds, plants medium in number, vigorous, injured by leaf-spot, productive; fruit above medium in size, irregular wedge, glossy dark red, medium firm, sweet, with dark red flesh; good; midseason.

Globe. 1. *Mich. Sta. Bul.* **213**:7. 1904. 2. *N. Y. Sta. Bul.* **309**:536. 1908.

Originated in 1898 with Eugene Sutherland, West Coxsackie, New York. Perfect. As grown here, plants medium in number and vigor, attacked by leaf-spot, very productive; fruit-bud clusters conspicuous, showing above the foliage; fruit-stems thick, erect; fruit large to below medium, drops in size, irregular in shape, with very roughish surface, dull medium red, firm, acid; fair; midseason.

Glossy Cone. 1. *N. J. Hort. Soc. Rpt.* 7. 1878.

Originated about 1865 by E. W. Durand, Irvington, New Jersey. Perfect. Plants unproductive; fruit small, conic, scarlet; flesh medium firm; poor.

Gold. 1. *Rural N. Y.* **45**:509. 1886. 2. *N. Y. Sta. Bul.* **24**:332. 1890.

Raised from mixed seed of Jersey Queen and Prince of Berries in 1880 by P. M. Augur, Middlefield, Connecticut. Imperfect. In the Station beds, plants vigorous, numerous, unproductive; fruit-stems short; fruit large, flattened at the apex, necked, light red, firm, finely flavored; good; midseason.

Gold Coin. 1. *Am. Pom. Soc. Rpt.* 209. 1922.

The original plant was found in a shipment of Lucky Boy in 1919 by A. B. Katkamier, Macedon, New York. Semi-perfect. Plants at this Station very few, vigorous, healthy, very productive; autumn-bearing; leaves dark green; flowers small; fruit-stems long, thick, semi-erect; calyx depressed; fruit variable in size, blunt-wedge to blunt-conic, glossy medium red, moderately juicy, firm, subacid; fair to good; early midseason.

Gold Dollar. 1. *Ore. Bien. Rpt. Bd. Hort.* 103. 1911.

Originated with Z. Mills, Springbrook, Oregon, as a supposed seedling of Excelsior. It is grown somewhat in Oregon where it is considered one of the best early varieties for nearby markets. Perfect. Plants numerous, vigorous, medium productive; fruit medium in size, uniform, round-conic, dark red; flesh medium red, rather soft, subacid; good; early.

Golden Defiance. 1. *Gard. Mon.* **16**:279. 1874.

Originated with Amos Miller, Carlisle, Pennsylvania. In 1879 the name was added to the American Pomological Society's catalog, from which it was removed in 1883. Imperfect. At this Station, plants very vigorous, numerous; fruit medium to large, roundish or oblate-conic, bright red, not very firm, acid, pleasant; good; late.

Golden Gate. 1. *N. Y. Sta. Bul.* **309**:526. 1908.

Originated in 1903 by S. H. Warren, Weston, Massachusetts, who introduced it in 1906. It is thought to be a seedling of Marshall. Semi-perfect. Station plants medium to numerous, vigorous, healthy, very productive; leaves large, dark green; fruit-stems short, prostrate; calyx large, leafy; seeds raised; fruit above medium to very large, wedge, necked, medium to dark red, glossy, very firm, mildly acid; good; medium early. Has many qualities to commend it.

Golden Seeded. 1. *Cultivator* **7**:323. 1859. 2. Fuller *Sm. Fr. Cult.* 93. 1867.

Originated with W. H. Read, Port Dalhousie, Ontario, Canada; introduced in 1859. Perfect. Plants medium in number, unproductive; fruit medium in size, blunt-conic, dark crimson; flesh medium red, moderately firm, sweet; very good; early midseason.

Goldsborough. 1. *N. Y. Sta. Bul.* **276**:71. 1906.

Raised by A. T. Goldsborough, Washington, D. C., as a cross between a wild berry and British Queen. Imperfect. As grown here, plants very few, vigorous, unproductive; fruit-stems thick; fruit above medium to large, retains size well, round-conic to wedge, dull red, firm, mildly acid, well flavored; good; early to midseason.

Goliath. 1. *Horticulturist* **6**:552. 1851.

An English sort grown somewhat in this country about 1860. Perfect. Plants medium in number, vigorous, hardy; fruit large, irregular coxcomb, bright scarlet; flesh light red, medium firm, acid; good; late.

Good Luck. 1. *N. Y. Sta. Bul.* **309**:527. 1908. 2. *Ibid.* **427**:529, Pl. 1916.

The fruits of Good Luck are distinguished by flesh so firm that they are hardly surpassed for shipping purposes. Moreover, they are large, handsome and very good in quality for those who like a sprightly strawberry. Besides this slight acidity they have a very distinctive flavor. Unfortunately the apex of the berries colors slowly so that much care must be taken in picking to avoid green tips. The plants are unusually satisfactory, especially as they are not susceptible to leaf-spot, but they must not be set too closely as they develop many runners. At the close of the season, especially in dry weather, the berries run small and show too many seeds. Good Luck originated with Elwood Pedrick, Cumberland County, Maryland, in 1904; introduced in 1907 by W. F. Allen, Salisbury, Maryland. In 1909 the American Pomological Society added the variety to its catalog list of fruits.

Perfect. Plants numerous, vigorous, tall, attacked by leaf-spot under unfavorable conditions, very productive; leaves medium in size, thickness and color, rugose, dull. Flowers midseason, large; petals 6–7; stamens variable in number; receptacle medium to large. Fruit late; fruit-stems long, thick, semi-erect; pedicels long; calyx large, flat, leafy, often surrounded at the base by small, fleshy protuberances; sepals long, broad; berries large, retain size fairly well, distinctly wedge with some coxcombs in the first pickings; apex a pointed wedge, inclined to green tips; color glossy medium red; seeds variable in position; flesh well colored to the center, juicy, firm, sprightly; quality good.

Goodell. 1. *N. Y. Sta. Bul.* **401**:181. 1915.

Originated in 1906 by Samuel Goodell, Seattle, Washington, as a cross between Marshall and a white seedling of Royal Sovereign and Louis Gauthier. Perfect. On the Station grounds, plants few, small, weak, low growing, very productive; fruit-stems slender, prostrate; fruit above medium to small, blunt-wedge, often green tipped and poorly developed, glossy dark red, juicy, very firm, sweet, well flavored; good to very good; midseason.

Goodwin. 1. *N. Y. Sta. Bul.* **401**:181. 1915.

A cross between Dawn and a seedling of Dawn and Ionia, raised in 1905 by H. J. Schild, Ionia, Michigan. Perfect. In the Station beds, plants few, vigorous, productive, attacked by leaf-spot; leaves large, very dark green; flowers large; fruit-stems short, thick, prostrate; calyx large, flat; fruit large, conic, broad at the base, glossy dark red, very juicy and firm, well flavored, sprightly; very good; midseason.

Goree. 1. *N. Y. Sta. Bul.* **336**:56. 1911.

A chance seedling found in a bed of Brandywine in 1902 by J. W. Goree, Whitewright, Texas. Perfect. Plants at this Station few, medium in size and vigor, healthy, unproductive; fruit medium to small, conic, glossy dark red, very juicy, firm, subacid, highly flavored; good; midseason.

Governor Hoard. 1. *Ann. Hort.* 211. 1891. 2. *N. Y. Sta. Bul.* **44**:143. 1892. *Loudon's No. 15.* 3. *Mich. Sta. Bul.* **67**:6. 1890.

A seedling of Sharpless raised in 1882 by F. W. Loudon, Janesville, Wisconsin. Perfect. Station plants vigorous, numerous, with dark green foliage; fruit large, round-conic, attractive dark red, medium firm, subacid; good; midseason.

Governor Rollins. 1. *N. Y. Sta. Bul.* **309**:527. 1908.

Raised from seed about 1900 by Benjamin M. Smith, Beverly, Massachusetts. Perfect. As grown here, plants medium in number, vigorous, healthy, productive; leaves large, dark green; fruit-stems short, thick, semi-erect; calyx very large, leafy, dark green, sometimes discolored; fruit large to medium, retains size well, variable in shape, dull medium to dark red, green tipped, firm, mildly acid, with pleasant flavor; good to very good; midseason.

Graham. 1. *Mich. Sta. Bul.* **142**:153. 1897.

Originated with C. W. Graham, Afton, New York. Perfect. Plants medium in vigor and productivity; fruit of medium size, round-conic, dark crimson; flesh dark red, medium firm, acid; very good; midseason.

Grand Marie. 1. *N. J. Hort. Soc. Rpt.* 48. 1911. 2. *N. Y. Sta. Bul.* **401**:182. 1915.

Originated by H. J. Schild, Ionia, Michigan, as a cross between Dawn and a seedling of Dawn and Ionia. Perfect. On the Station grounds, plants vigorous, productive, healthy; leaves large; flowers large; fruit-stems thick, prostrate; calyx large, raised; fruit very large, oblong-conic, with a long, tapering apex, necked, glossy medium red, green-tipped, firm, sweet, with whitish flesh; good; early.

Grand Prize. 1. *Am. Pom. Soc. Rpt.* 166. 1920.

A chance seedling originating with H. L. McConnell & Son, Port Burwell, Ontario; introduced in 1915. Perfect. Plants vigorous; fruit similar in size and shape to Pocomoke, dark red; flesh dark red, firm; high in quality; ripens with Williams.

Granger. 1. *N. Y. Sta. Bul.* **336**:56. 1911.

A chance seedling which originated in 1908 with E. H. Ekey, Steubenville, Ohio. Imperfect. In the Station beds, plants medium in number, vigor, and yield, healthy, leaves large, dark green; fruit-stems short, prostrate; calyx leafy; fruit large, long-conic, bright red, juicy, firm, pleasantly subacid, with dark red flesh; very good; late midseason or later.

Granville. 1. *Ohio Sta. Bul.* **54**:45. 1894. 2. *Rural N. Y.* **62**:518. 1903.

Originated with A. M. Nichols, Granville, Ontario, Canada, as a supposed seedling of Miner. Perfect. Plants at this Station, vigorous, numerous, attacked by leaf-spot, productive; fruit medium to large, round-conic, light to dark red, colors unevenly, not very juicy, medium firm, mildly subacid; fair to good; medium late.

Gray.

Gray Dollar. 1. *N. Y. Sta. Bul.* **336**:56. 1911.

Dollar Mark. 2. *Ohio Sta. Bul.* **364**:76. 1923.

Originated by A. G. Gray, Pekin, Indiana, as a seedling of Gandy; introduced by him about 1908. Perfect. At this Station, plants numerous, large, vigorous, healthy, moderately productive; fruit large, chunky-wedge, dull medium red, juicy, firm, variable in flavor; very good; midseason.

Great American. 1. *N. J. Hort. Soc. Rpt.* 8. 1878.

Originated by E. W. Durand, Irvington, New Jersey, about 1875. It was widely disseminated at high prices, but failed except in the region of its origin. Added to the catalog of the American Pomological Society in 1879 from which it was removed in 1897. Perfect. Plants medium in number, productive; fruit large to very large, irregular, dark scarlet; flesh light red, medium firm; good; late.

Great Pacific. 1. *Ill. Hort. Soc. Rpt.* 360. 1886. 2. *N. Y. Sta. Bul.* **44**:143. 1892.

Originated about 1885 by D. J. Piper, Foreston, Illinois. Imperfect. Station plants very vigorous, numerous, productive; fruit-stems stout, upright; fruit large, conic, glossy bright red, firm, subacid; good; midseason.

Great Scott. 1. *Rural N. Y.* **59**:674. 1900. 2. *N. Y. Sta. Bul.* **309**:528. 1908.

Raised from seed about 1899 as a cross between Bubach and Belmont by John Scott, Newton, Massachusetts. Imperfect. As grown here, plants few, lack vigor, healthy,

unproductive; fruit-stems prostrate; calyx much sunken; fruit medium to very large, retains size well, decidedly variable in shape, glossy, light to dark red, firm, acid, inferior in flavor; poor; midseason. Of no value here.

Greek. 1. *N. Y. Sta. Bul.* **447**:70. 1918.

Originated with Sylvester Marshall, Athens, Ohio, in 1912. Perfect. On the Station grounds, plants medium in number and vigor, healthy, productive; fruit-stems semi-erect, branching into long pedicels; calyx large, distinctly raised and with long, reflexed sepals tinged red; fruit above medium in size, long-conic, almost oblong, strongly necked, glossy medium red, juicy, very firm, sprightly, with red flesh; fair; midseason.

Green Prolific. 1. *Mag. Hort.* **29**:382. 1863. 2. Fuller *Sm. Fr. Cult.* 93, fig. 31. 1867. *Newark Prolific.* 3. *Gard. Mon.* **8**:280. 1866.

Originated about 1858 by Seth Boyden, Newark, New Jersey, as a cross between Hovey and Goliath. In spite of softness and poor quality, it was at one time a valuable sort in New Jersey. Green Prolific was added to the catalog of the American Pomological Society in 1871 from which it was removed in 1881. Imperfect. Plants numerous, vigorous, hardy and productive; fruit large, round, pale crimson; flesh light red, rather soft, acid; poor; late.

Greensboro. 1. *Va. Sta. Tech. Bul.* **11**:42. 1916.

Greensboro Favorite. 2. *Am. Pom. Soc. Rpt.* 166. 1920.

Originated with R. G. Thomas, Greensboro, North Carolina, in 1900. Plants vigorous; fruit medium in size, round-conic, dark red; good; early midseason.

Greenville. 1. *N. Y. Sta. Bul.* **36**:632. 1891.

Buechly's Seedling. 2. *N. Y. Sta. Bul.* **24**:338. 1890.

A chance seedling which originated in 1883 with E. M. Buechly, Greenville, Ohio. At one time valued for the general market on account of its great productivity. Added to the catalog of the American Pomological Society in 1897 where it remained in the last catalog in 1909. Imperfect. In the Station beds, plants very vigorous, very productive, numerous; fruit-stems short; fruit large, dark red, variable in shape, firm, with a strong flavor; fair; midseason.

Greenwood. 1. *N. Y. Sta. Bul.* **336**:56. 1911.

Originated with S. Hill, Greenwood, Massachusetts; introduced in 1909 by C. S. Pratt, Reading, Massachusetts. Perfect. Plants at this Station few, above medium in size and vigor, healthy, unproductive; fruit-stems characteristically long and slender-branched; fruit above medium to small, conic or wedge, medium juicy, firm, very mild, sweet, of inferior flavor; poor; late.

Grove End Scarlet. 1. *Trans. Lond. Hort. Soc.* **5**:399. 1824. 2. Downing *Fr. Trees Am.* 527. 1845.

An old English sort popular in this country from 1830 to 1840. Originated by William Atkinson, Grove End, England, about 1820; introduced into this country about 1830. Perfect. Plants numerous, vigorous, and productive; fruit medium in size, roundish, light scarlet; flesh light red, firm, mildly subacid; good; early.

Gypsy. 1. *Ohio Hort. Soc. Rpt.* 57. 1881–82. 2. *N. Y. Sta. Bul.* **36**:632. 1891.

Originated in New Jersey; introduced about 1879. Added to the catalog of the American Pomological Society in 1883 from which it was removed in 1897. Imperfect. At this Station, plants vigorous, numerous, low growing, medium productive; fruit-stems short; fruit of medium size, dark red, heart-shaped, firm, well flavored, round-conic, with dark red flesh; good; medium early. Fruit resembles Wilson but larger.

Haight. 1. *Mich. Sta. Bul.* **169**:147. 1899. 2. *Va. Sta. Tech. Bul.* **11**:43. 1916.

Originated about 1886 with J. H. Haight, Osage, Iowa, as a seedling of Wilson. Perfect. Berries medium in size, conic, scarlet, moderately firm; fair; midseason.

Hall Beauty. 1. *Am. Pom. Soc. Rpt.* 166. 1920.

Originated with the Armstrong Nurseries, Ontario, California. Plants healthy, productive; berries large, well colored, aromatic; good.

Hall Favorite. 1. *Am. Gard.* **17**:727. 1896.

Originated as a chance seedling in 1891 with J. W. Hall, Marion, Maryland. Perfect. Plants vigorous; berries medium in size, roundish, crimson, firm, acid; good; early.

Halley. 1. *Ohio Sta. Bul.* **236**:223. 1912.

Originated at the Ohio Agricultural Experiment Station; parentage unknown. Perfect. Plants large, vigorous; berries large, conic, bright scarlet, firm, acid; good; early to late.

Ham. 1. *Rural N. Y.* **60**:518. 1901. 2. *N. Y. Sta. Bul.* **218**:197. 1902.

Originated in 1898 with J. H. Black, Son & Company, Hightstown, New Jersey, as a seedling of Mary and Sharpless crossed with Marshall. Perfect. As grown here, plants vigorous, healthy, medium in number; fruit large, decidedly wedge, very dark red, firm, juicy, well flavored; seeds raised; good; midseason. Fruit too dark in color.

Hammer. 1. *Va. Sta. Tech. Bul.* **11**:43. 1916.

A chance seedling which originated with August Hammer, Bridgman, Michigan; introduced in 1915. Perfect. Berries large, round-conic, dark crimson; flesh dark red, firm, mildly subacid; good; midseason to late.

Hampden. 1. *N. Y. Sta. Bul.* **24**:333. 1890. 2. *Va. Sta. Tech. Bul.* **11**:43. 1916.

Originated in 1883 with J. W. Adams & Company, Springfield, Massachusetts. Imperfect. On the Station grounds, plants vigorous, numerous, very productive, severely injured by leaf-spot; fruit medium to large, oblong-conic, bright red, firm, subacid; good; midseason, ripening period long.

Hanbach. 1. *Va. Sta. Tech. Bul.* **11**:43. 1916.

Originated with T. M. Hanbach, Warrenton, Virginia, as a cross between Mascot and Gandy; introduced in 1912. Perfect. Berries medium, round-conic, light crimson, firm; good; late.

Hanks. 1. *Wash. Nur. Cat.* 18. 1923.

Introduced recently by the Washington Nursery Company, Toppenish, Washington. Semi-perfect to imperfect. In the Station beds, plants medium in number and yield, vigorous, healthy; autumn-bearing; flowers very early, very small; fruit-stems short, thick, prostrate; fruit medium to small, roundish, glossy red, juicy, medium firm, sweet; good; very early.

Harlem Orange. 1. *Mag. Hort.* **18**:407. 1852.

Raised by Thomas Edmondson, Baltimore, Maryland; introduced about 1850. Imperfect. Berries medium in size, conic, orange-scarlet, firm; good; early to midseason.

Harmon. 1. *Mich. Sta. Bul.* **100**:7. 1893.

Introduced about 1892 by Slaymaker & Son, Dover, Delaware. Perfect. Plants vigorous, productive; berries medium in size, round-conic, very dark crimson; flesh dark red, firm; very good; early.

Harrison. 1. *Penn. Sta. Rpt.* 216. 1898–99.

Originated by George W. Adams, Tamaqua, Pennsylvania; introduced about 1897. Perfect. Plants vigorous, healthy; berries large; runners numerous; midseason.

Hart Minnesota. 1. *Ia. Hort. Soc. Rpt.* 415. 1882.

Originated in 1872 with John Hart, Winona, Minnesota; introduced in 1875; included in the American Pomological Society's fruit catalog from 1883 to 1897. Perfect. Plants vigorous, moderately productive; berries medium in size, round-conic, crimson, firm; good; midseason.

Hartnell. 1. *Va. Sta. Tech. Bul.* **11**:43. 1916.

Originated by a Mr. Hartnell, Oregon City, Oregon; introduced about 1913. Perfect. Plants vigorous, productive; berries medium in size, round-conic, dark crimson, firm, mildly subacid; fair; midseason.

Hatch Experiment Station. 1. *Am. Gard.* **19**:642. 1898. 2. *Va. Sta. Tech. Bul.* **11**:44. 1916.

Originated at the Hatch Experiment Station, Amherst, Massachusetts; introduced about 1892. Imperfect. Berries large, round-conic to obconic, crimson, firm, subacid; very good; late.

Hatfield. 1. *N. Y. Sta. Bul.* **44**:143. 1892. 2. *Va. Sta. Tech. Bul.* **11**:44. 1916.

Originated with William Cook, Camden County, New Jersey; introduced about 1889. Perfect. Plants at this Station, medium in vigor, healthy; fruit medium to large, conic, pleasant subacid; good; midseason.

Hathaway. 1. Downing *Fr. Trees Am.* 989. 1869.

Originated by B. Hathaway, Little Prairie Ronde, Michigan; introduced about 1850. Perfect. Plants vigorous, very productive; berries large, roundish to oblong, dark scarlet; flesh light red, moderately firm, acid; good.

Hattie Jones. 1. *Ind. Hort. Soc. Rpt.* 104. 1889.

Hattie. 2. *Ind. Sta. Bul.* **48**:6, 8. 1894.

Originated with Adam Jones, Plainfield, Indiana; introduced about 1889. Perfect. Plants vigorous, productive; berries medium in size, round-conic, light scarlet; flesh whitish, soft; poor; midseason.

Hattie Warfield. 1. *Mich. Sta. Bul.* **177**:19, 22. 1899.

Originated with W. W. Sewall, Carthage, Missouri; introduced about 1897. Imperfect. Plants vigorous, productive; berries medium in size, round-conic, deep scarlet, firm; good; midseason.

Haverland. 1. *Col. O. Hort. Soc. Rpt.* 219. 1887. 2. *N. Y. Sta. Bul.* **24**:333. 1890. 3. *Va. Sta. Tech. Bul.* **11**:44. 1916.

At the beginning of this century Haverland was considered about the best strawberry for home use and local markets and is still to be found in many gardens in the New England states. The berries are too soft and too light in color for distant markets. The crop ripens over a long season. The plants are very productive and the variety has a reputation of being very hardy, and its blossoms are said to be seldom injured by frost. The clusters are so heavy as to lie on the ground so that a mulch is always necessary for this sort. Dunlap makes the most satisfactory pollinizer. The variety originated in 1882 as a cross between Crescent and Sharpless with B. H. Haverland, Cincinnati, Ohio; introduced in 1887. The American Pomological Society added the variety to its list of recommended fruits in 1889.

Imperfect. Plants variable in number, tall, vigorous, healthy, very productive; leaves light to dark green, thin, smooth, glossy. Flowers early; petals 5–6; receptacle small. Fruit midseason; fruit-stems slender, too weak to hold up the fruit; pedicels short, slender; calyx large, raised, often leafy, easily detached, well colored; sepals long, narrow; berries medium to large, symmetrical, long-conic to wedge, sometimes necked; apex pointed; color glossy light red; seeds raised; flesh pale red, not very firm, juicy, sweet; mildly subacid; quality good.

Hawaii. 1. *Am. Gard.* **19**:608, 684. 1898.

Originated in 1895 with E. W. Wooster, Hancock Point, Maine, as a cross between Haverland and Parker Earle. Perfect. Plants vigorous, productive; berries medium in size, conic, light crimson, moderately firm, subacid; good; early.

Hayden. 1. *Va. Sta. Tech. Bul.* **11**:44. 1916.

Originated with James Stayman, Leavenworth, Kansas; introduced about 1894. Perfect. Berries scarlet; flesh light red, firm, acid; good; midseason.

Hayes. 1. *Mich. Sta. Bul.* **148**:53, 56. 1897.

Hayes' Prolific. 2. *Va. Sta. Tech. Bul.* **11**:44. 1916.

Originated in Chester County, Pennsylvania; introduced in 1893. Imperfect. Berries medium in size, round-conic, dark crimson, moderately firm; fair; midseason.

Hazel. 1. *Rural N. Y.* **58**:514. 1899. 2. *N. Y. Sta. Bul.* **218**:197. 1902.

Originated in 1897 as a seedling of Warfield and Sharpless crossed with Gandy by J. H. Black, Son & Company, Hightstown, New Jersey. Imperfect. At this Station, plants numerous, vigorous, healthy, with good foliage; fruit above medium in size, decreases rapidly, variable in shape, very light red, soft, subacid; good; midseason. An inferior variety.

Heflin. 1. *Am. Gard.* **25**:436. 1904.

Heflin Early. 1. *Md. Sta. Bul.* **124**:181. 1907.

Originated in North Carolina and introduced about 1902. Perfect. Berries medium in size, round-conic, bright crimson; flesh light red, firm, subacid; good; early.

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Heflin and Hanbach. 1. *Va. Sta. Bul.* **91**:84, 88. 1898.

Originated by T. M. Hanbach, Warrenton, Virginia; introduced about 1896. Imperfect. Plants vigorous; berries medium in size, irregular conic, dark crimson; flesh dark red, moderately firm, acid; fair; midseason.

Helen. 1. *Cult. & Count. Gent.* **43**:409. 1878.

Originated with Robert Lewis, Castleton, New York; introduced about 1875. Perfect. Plants vigorous; berries medium in size, round-conic, light scarlet; flesh whitish, firm; very good; late.

Helen Browning. 1. *Va. Sta. Tech. Bul.* **11**:44. 1916.

Originated with C. A. Browning, Apponong, Rhode Island, as a chance seedling; introduced in 1913. Perfect. Berries medium in size, round-conic to irregular wedge, dull scarlet; flesh light red, firm, acid; good; moderately early.

Helen Chapman. 1. *Ohio Sta. Bul.* **85**:13. 1897.

Imperfect. Plants healthy, moderately vigorous and productive; berries medium in size, conical, regular, light scarlet, firm, acid; good; midseason.

Helen Davis. 1. *N. Y. Sta. Bul.* **401**:182. 1915.

A chance seedling found by George W. Davis, Brazil, Indiana, in 1905. Perfect. Station plants very numerous and vigorous, productive, unhealthy; fruit-stems thick; fruit large, blunt-conic, dull light red, very juicy, tender, subacid, inferior in flavor; poor; midseason.

Helen Gould. 1. *N. Y. Sta. Bul.* **309**:528. 1908.

Originated about 1896 by J. R. Peck, Breckenridge, Missouri, as a cross between Jewell and Jessie. Imperfect. As grown here, plants very few, weak, healthy, unproductive; fruit-stems very short, thick, prostrate; fruit above medium to medium in size, round-conic to blunt-wedge, dull dark red, firm, pleasantly acid, well flavored, with dark red flesh; fair to good; midseason. General appearance unattractive.

Henderson. 1. *Rural N. Y.* **43**:429, fig. 205. 1884.

Originated about 1879 by George Seymour, South Norwalk, Connecticut. Perfect. On the Station grounds, plants vigorous, numerous, unproductive; fruit-stems erect; fruit medium in size, round to oblong, glossy red, soft, well flavored; very good; medium early. Not productive enough here to pay for cultivation.

Henry. 1. *Va. Sta. Tech. Bul.* **11**:45. 1916.

Originated as a chance seedling by J. O. Wadsworth, Wolcott, New York. Perfect. In the Station beds, plants numerous, vigorous, attacked by leaf-spot; fruit medium to large, drops rapidly in size, irregularly roundish, glossy dark red, nearly firm, juicy, with dark red flesh; good to very good; medium early.

Herald. 1. *Ohio Sta. Bul.* **85**:13. 1897.

Originated with Henry Young, Ada, Ohio; introduced about 1895. Perfect. Plants vigorous; berries large, irregular, ribbed and coxcombed, dark scarlet, with green tips, firm; good; midseason.

Herbert. 1. *N. Y. Sta. Bul.* **64**:8. 1894.

Introduced by B. L. Carr, Saratoga Springs, New York, about 1890. Perfect. Plants at this Station few, very unproductive, with good foliage; fruit-stems short; fruit small to medium, firm; fair; midseason.

Herbst. 1. *Va. Sta. Tech. Bul.* **11**:45. 1916.

Herbst No. 2. 2. *Am. Gard.* **17**:627. 1896.

A seedling of Warfield originated by J. L. Herbst, Sparta, Wisconsin; introduced about 1892. Perfect. Plants productive; berries medium in size, round-conic, very dark crimson; flesh dark red, firm, acid; fair; midseason.

Hercules.

Kellogg's Hercules. 1. Kellogg *Cat.* 24. 1918.

Originated about 1912 by F. L. Ossman, Fulton, Maryland, as a cross between Ozark and a Heritage seedling. Perfect. At this Station, plants few, medium in vigor and yield, healthy; calyx very large; fruit variable in size, wedge to conic, furrowed, dull dark red, colors unevenly, juicy, very firm, sweet, with dark red flesh; good; midseason.

Heritage. 1. *N. J. Hort. Soc. Rpt.* 44. 1909. 2. *N. Y. Sta. Bul.* **336**:57. 1911.

Originated in 1902 with J. E. Heritage, Marlton, New Jersey, as a cross between Barton and Marshall. Perfect. Station plants few, medium in size, vigorous, healthy, productive; fruit-stems short, thick, semi-erect; fruit large, irregular, oblong-conic or wedge, glossy medium red, medium juicy, firm, subacid, highly flavored; very good; late. Surpassed by better kinds.

Hermia. 1. *Va. Sta. Tech. Bul.* **11**:45. 1916.

Originated in 1906 at the Central Experimental Farm, Ottawa, Canada, as a seedling of Belt. Perfect. Berries large, wedge-conic, dark crimson; flesh dark red, firm, subacid; good; midseason.

Hermit. 1. *Ind. Sta. Bul.* **38**:8. 1892.

Originated with F. L. Piers, New Providence, Indiana; introduced about 1890. Perfect. Berries large, round-conic, bright crimson, firm; good; moderately early.

Hero. 1. *Mass. Hort. Soc. Rpt.* 171. 1878.

Originated by Marshal P. Wilder, Dorchester, Massachusetts; introduced in 1878. Berries large, long-conic, crimson; flesh medium red, not very juicy; fair.

Hero (of Bauer). 1. *Rural N. Y.* **61**:480. 1902. 2. *Va. Sta. Tech. Bul.* **11**:45. 1916.

Originated by J. C. Bauer, Judsonia, Arkansas; introduced in 1900. Perfect. Plants vigorous, productive; berries large, round-conic to wedge shape, scarlet, firm, subacid; fair; early to midseason.

Hersey. 1. *N. Y. Sta. Bul.* **109**:235. 1896.

Originated with Samuel Hersey, Hingham, Massachusetts; introduced in 1893. Perfect. Station plants numerous, vigorous; fruit-stems medium; fruit small to medium, roundish, necked, light red, firm, with dark red flesh; fair; midseason.

Hervey Davis. 1. *W. N. Y. Hort. Soc. Rpt.* 54. 1879. 2. *Ia. Hort. Soc. Rpt.* 416. 1882.

Originated in 1875 by J. B. Moore, Concord, Massachusetts. Perfect. Plants vigorous, productive; berries large, round-conic, bright crimson; flesh whitish, moderately firm; good; midseason.

Hiawatha. 1. *Va. Sta. Tech. Bul.* **11**:45. 1916.

Originated with James Stayman, Leavenworth, Kansas, as a seedling of Aroma; introduced about 1893. Perfect. Berries medium in size, roundish, scarlet, firm; fair; midseason.

Hiawatha (of Warren). 1. *Am. Pom. Soc. Rpt.* 166. 1920.

Originated by S. H. Warren, Auburndale, Massachusetts. Described as a "new sort ripening a few days ahead of Commonwealth, which it surpasses in size, color and flavor."

Highland. 1. *N. Y. Sta. Bul.* **336**:57. 1911.

Highland Seedling. 2. *Ohio Sta. Bul.* **166**:75. 1905.

A chance seedling discovered by T. B. Carlisle, Canfield, Ohio, about 1898. Imperfect. As grown here, plants numerous, large, very vigorous, healthy, productive; leaves large, dark green; flowers small, early; fruit-stems thick, prostrate, branching very freely; seeds deeply sunken; fruit large, conic, glossy light red, very juicy, tender, very tart; good; very early. Worthy of test.

Highland King. 1. *Va. Sta. Tech. Bul.* **11**:45. 1916.

Mentioned in 1914. Berries medium to large, oval-conic, crimson, mildly subacid; good; moderately early.

Hilton. 1. *Rural N. Y.* **45**:461, fig. 280. 1886.

Alley's No. 9. 2. *Ibid.* **45**:4, 102, fig. 2. 1886.

Hilton Gem. 3. Thomas *Am. Fruit Cult.* 737. 1897.

Originated in 1881 by H. H. Alley, Hilton, New Jersey; supposed to be a seedling of Sharpless. Perfect to semi-perfect. Plants vigorous, productive; berries large, irregular, round-conic to ovate, light crimson, firm, acid; good; midseason.

Hinman. 1. *N. Y. Sta. Bul.* **24**:333. 1890.

Hinsmore. 2. *Mass. Sta. Bul.* **21**:6. 1893.

Originated as a chance seedling with a Mr. Hinman, Akron, Ohio; introduced in 1890. Perfect. On the Station grounds, plants very vigorous, very numerous, severely injured by leaf-spot, unproductive; fruit medium in size, irregular round-conic, glossy red, firm; fair; midseason.

Hoffman. 1. *Rural N. Y.* **47**:710. 1888. 2. *U. S. D. A. Rpt.* 252. 1892.

Originated from seed of Neunan in 1877 by H. Hoffman, Charleston, South Carolina. Perfect. In the Station beds, plants vigorous, very numerous, productive, healthy; fruit-stems erect, long, stout; fruit large, bright red, round-conic, firm, subacid; fair; early.

Holland. 1. *Ark. Sta. Bul.* **43**:79, 82. 1896. 2. *N. Y. Sta. Bul.* **147**:186. 1898.

Originated as a chance seedling with C. A. Holland, Judsonia, Arkansas; introduced in 1895. Imperfect. Plants vigorous; berries large, round, scarlet; flesh dark red, moderately firm; good; midseason.

Homestead. 1. *Mich. Hort. Soc. Rpt.* 316. 1897.

Originated with Edward W. Cone, Menomonie, Wisconsin; introduced about 1896. Perfect. Berries small, regular, round-conic, dark crimson, soft; very good; midseason.

Honey. 1. *Cal. St. Bd. Hort. Rpt.* 367. 1892. 2. *Va. Sta. Tech. Bul.* **11**:46. 1916.

Originated with S. L. Watkins, Grizzly Flats, California; apparently a form of *Fragaria chiloensis;* introduced about 1892. Perfect. Berries small, oblong, bright crimson, moderately firm, juicy, very sweet and aromatic; very good; has fruited for eight months of the year in California.

Honeymoon. 1. *Am. Pom. Soc. Rpt.* 166. 1920. 2. Mayer *Cat.* 7. 1920.

Originated by H. J. Schild, Ionia, Michigan, as a cross between Black Beauty and Pan American; introduced in 1919. Perfect. Autumn-fruiting; berries large, roundish, deep red, very firm; good.

Honor. 1. *Cassel Nur. Cat.* 1924.

Originated in 1917 as a cross between Warfield and Superb by M. Cassel, Mantua, Ohio. Perfect. Plants at this Station, medium in number and height, vigorous, productive; flowers late; fruit-stems short, thick, prostrate; calyx large, depressed; seeds raised; fruit medium to large, blunt-conic to wedge, medium to dark glossy red, juicy, firm, subacid, with red flesh; good; late midseason. Should be tested further.

Hooker. 1. Downing *Fr. Trees Am.* 989. 1869.

Hooker's Seedling. 2. *Mag. Hort.* **21**:370. 1855.

Originated by H. E. Hooker, Rochester, New York; introduced in 1852; included in the American Pomological Society's catalog from 1858 to 1871. Perfect. Plants vigorous, productive; berries large, round-conic to coxcomb, very dark crimson; flesh dark red, soft, sweet; very good; midseason.

Hoosier. 1. *Am. Gard.* **19**:534. 1898. 2. *Va. Sta. Tech. Bul.* **11**:46. 1916.

Originated by Ran Benoy, Matthews, Indiana; introduced about 1896. Perfect. Berries large, irregular round-conic to wedge-shape, dark crimson; flesh dark red, firm; very good; midseason.

Horsey. 1. Hall *Cat.* 1920.

Originated in 1916 by John C. Horsey, Somerset County, Maryland, as a cross between Missionary and Klondike. Perfect. At this Station, plants medium in number and vigor, productive, healthy; fruit-stems short, thick, prostrate; fruit above medium to small, blunt-conic, necked, glossy dark red, juicy, medium firm, with sprightly, red flesh; poor; midseason.

Hovey. 1. *Va. Sta. Tech. Bul.* **11**:46, fig. 9. 1916.

Hovey's Seedling. 2. *Mag. Hort.* **6**:284, fig. 9. 1840. 3. Hovey *Fr. Am.* **1**:25, Pl. 1851.

Hovey was the first good strawberry to originate in America. It was originated by C. M. Hovey, Boston, Massachusetts, in 1834 and was introduced in 1838. While it was valued for home use rather than for market, it was a standard sort in many localities as late as 1880. According to the American Pomological Society the variety was being grown in sixteen states in 1889. The society included Hovey in its fruit catalog from 1852 to 1897. The variety has been gradually supplanted by better sorts so that it has been practically lost to cultivation since the close of the nineteenth century. For a further discussion of this variety see page 367.

Imperfect to semi-perfect. Plants numerous, large, vigorous, upright, medium in height, productive; leaves light to dark green, large, smooth, glossy. Flowers small; petals roundish, slightly overlapping, cupped; stamens few, imperfectly developed. Fruit midseason; fruit-stems intermediate in length and thickness; pedicels long, slender; calyx very small, reflexed; berries medium to large, round-conic, with a short neck; apex obtuse; color glossy dark red; seeds slightly sunken; flesh scarlet, firm, highly flavored, pleasantly acid; quality good.

Howard. 1. *Va. Sta. Tech. Bul.* **11**:47. 1916.

Howard No. 17. 2. *Ohio Sta. Bul.* **236**:224, fig. 1912. 3. *Ibid.* **364**:79. 1923.

Kellogg's Premier. 4. *Ill. Hort. Soc. Rpt.* 238. 1915.

Premier. 5. *N. Y. Sta. Bul.* **447**:75. 1918.

Probably Howard is being more highly spoken of than any other strawberry recently introduced. It is yet too soon to tell just what place it will take in home and commercial strawberry growing in New York. The berry is the type of that of the well-known Dunlap; ripens as early, is a lighter red, and the calyx has not the red tinge that Dunlap often has. The plants are more productive, the picking season is longer, and the berries are larger. Probably Howard will replace Dunlap which has long been the standard early berry in many parts of the country. This is the most promising of the large number of seedlings originated by A. B. Howard, Belchertown, Massachusetts. It was introduced in 1909. Since that time the variety has been widely advertised by the R. M. Kellogg Company, Three Rivers, Michigan, as Kellogg's Premier, stock of which had been secured from E. A. Riehl, Alton, Illinois.

Perfect. Plants numerous, vigorous, healthy, productive for an early berry; leaves thick, dark green, dull. Flowers medium early, variable in size, cup-shaped; petals large, 5–9, crinkly; receptacle small. Fruit early, ripening period long, holds up in size; fruit-stems short, prostrate; pedicels long, slender; calyx large, flat or slightly raised, somewhat leafy, well colored; sepals long, broad; berries large, long-conic to wedge, the largest berries furrowed on each side; apex pointed; color attractive glossy red; seeds sunken; flesh well colored to the center, juicy, pleasantly sprightly, firm; quality good.

Howard (of Black). 1. *Rural N. Y.* **60**:514, fig. 220. 1901. 2. *Ohio Sta. Bul.* **236**:224. 1912.

Originated in 1896 by J. H. Black, Son & Company, Hightstown, New Jersey, as a cross between Barton and Gandy. Perfect. Station plants vigorous, numerous, healthy; fruit medium to large, variable in shape, with poorly developed apex, light red, juicy, firm; good; late.

Howard (of Michigan). 1. *Va. Sta. Tech. Bul.* 11:47. 1916.

Howard No. 2. 2. *Mich. Sta. Bul.* 206:53. 1903.

G. W. Howard. 3. *Ohio Sta. Bul.* 154:42. 1904.

Originated in 1895 by G. W. Howard, Stevensville, Michigan, as a chance seedling. Imperfect. As grown here, plants numerous, healthy, productive; fruit large to very large, retains size well, round-conic to blunt-wedge, glossy light red, medium juicy, soft, subacid; fair; medium early.

Howell. 1. *Mich. Hort. Soc. Rpt.* 241. 1886.

Howell's Prolific. 2. *Mo. Hort. Soc. Rpt.* 49. 1884.

Originated about 1880 with S. S. Howell, Knox County, Tennessee. Perfect. Plants vigorous; berries large, conic, sometimes necked, dark crimson, firm, mildly subacid; good; midseason.

Hub. 1. *N. Y. Sta. Bul.* 401:183. 1915.

Originated in 1901 by George P. Fuller, Melrose, Massachusetts, from a cross between Bubach and Belmont. Perfect. On the Station grounds, plants very few, small, low growing, healthy, medium productive; fruit-stems slender, erect; fruit above medium to medium in size, blunt-conic, glossy dark red, very juicy, firm, sweet, pleasantly flavored; good; midseason. Lacks in size and yield.

Hubach. 1. *Va. Sta. Tech. Bul.* 11:47. 1916.

Originated by Louis Hubach, Judsonia, Arkansas; introduced in 1912. Berries medium to large, round-conic, dark crimson; flesh dark red, firm, subacid; fair; early.

Hubach and Hathaway. 1. *Va. Sta. Tech. Bul.* 11:48. 1916.

Originated by Louis Hubach, Judsonia, Arkansas; introduced in 1906. Perfect. Berries large, round-conic, bright crimson, firm, subacid; good; very early.

Huddleston. 1. *Mich. St. Bd. Agr. Rpt.* 101. 1887.

Huddleston's Favorite. 2. *W. N. Y. Hort. Soc. Rpt.* 119. 1880.

Raised in 1874 by D. Huddleston, Dunreith, Indiana, as a cross between Wilson and Agriculturist. Imperfect. Berries large, round-conic, bright crimson, moderately firm, mild, subacid; good; late.

Hudson Bay. 1. Prince *Pom. Man.* 2:189. 1832.

Hudson's Bay Scarlet. 2. Lindley *Guide Orch. Gard.* 494. 1831.

This variety may have originated near York River, Hudson Bay, Canada. It was grown commercially in North America prior to 1828, and about 1850 was largely cultivated for New York and Philadelphia markets. It passed out of cultivation about 1870. Imperfect. Plants vigorous, productive; berries medium in size, ovate to conic, necked, dark glossy crimson; flesh pale red, acid; good; very late.

Hughson. 1. *N. Y. Sta. Bul.* 401:183. 1915.

A chance seedling found in 1906 by Edward Hughson, Lake Mills, Wisconsin. Imperfect. In the Station beds, plants numerous, vigorous, healthy, medium productive; fruit-stems thick, semi-erect; seeds deeply imbedded; fruit irregular in shape, large to medium, drops quickly in size, dull medium red, firm, tart, with whitish flesh, inferior in flavor; fair; early. Surpassed by other kinds.

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Hummer. 1. *N. Y. Sta. Bul.* **309**:528. 1908.

Originated by John Kolyvard, Kalamazoo County, Michigan; placed in the fruit catalog of the American Pomological Society in 1906. Perfect. At this Station, plants numerous, vigorous, usually healthy, above medium in yield; leaves often very large; fruit-stems thick, erect; fruit very large to medium, variable in shape, often furrowed, dull light and dark red, mild, medium to firm, subacid; fair; late midseason or later.

Hundred Dollar. 1. *N. Y. Sta. Bul.* **309**:529. 1908.

Raised by Wick Hathaway, Madison, Ohio; introduced in 1901. Perfect. Station plants few, vigorous, healthy, very productive; fruit-stems long, slender; fruit large to medium, retains size well, wedge to round-conic, light and dark red, firm, not very juicy, mild, pleasant but not highly flavored; fair; midseason. Coarse in appearance and lacks in juiciness.

Hunn. 1. *N. Y. Sta. Bul.* **91**:187. 1895.

Originated in 1889 by C. E. Hunn, New York Agricultural Experiment Station, Geneva, New York, as a cross between Johnson Late and Sharpless. Imperfect. As grown here, plants medium in number and vigor, not very productive, attacked by leaf-spot; fruit-stems short, stout; fruit above medium to very large, drops rapidly in size, blunt round-conic to slight wedge, very dark glossy red, firm, juicy, with dark red flesh, well flavored; very good; very late. Has been tested in many parts of the state but never proved very popular on account of low yield and leaf-spot.

Hunterdon. 1. Hunt *Cir.* 1921.

A cross between President and Nich Ohmer originated in 1906 by Thomas R. Hunt, Lambertville, New Jersey. Imperfect. On the Station grounds, plants numerous, vigorous, very productive, attacked by leaf-spot; leaves roundish, often with four leaflets; fruit-stems long, thick, semi-erect; calyx leafy, very large; fruit large, drops in size, blunt-wedge to blunt-conic, glossy medium red, firm, with whitish flesh, medium juicy, sweet to subacid, hollow at the center; good; early midseason. Worthy of test; better than the average.

Huntley. 1. *Am. Gard.* **21**:631. 1900. 2. *Ohio Sta. Bul.* **154**:41. 1904.

Originated by H. D. Huntley, Chestnut Grove, Ohio. Perfect. Berries large, roundish, scarlet; good.

Huntsman. 1. *Ohio Sta. Bul.* **54**:43. 1894.

Originated with W. A. Huntsman, Lawson, Missouri; introduced about 1891. Perfect. Plants vigorous; berries large, round-conic, dark crimson; flesh dark red, firm, acid; very good; midseason.

Hurlbert. 1. *N. Y. Sta. Bul.* **36**:632. 1891.

Introduced about 1889. Perfect. Plants at this Station of Sharpless type in growth and foliage, fairly productive; fruit-stems very stout, upright; fruit large, conical, dark glossy red, firm, with pleasing flavor, subacid; good.

Hustler. 1. *N. Y. Sta. Bul.* **447**:70. 1918.

Pinchot. 2. *N. J. Hort. Soc. Rpt.* 36. 1913.

A chance seedling found in 1910 by R. P. Lovett, Fallsington, Pennsylvania. Imperfect. In the Station beds, plants very few, medium in vigor, healthy, productive if planted closely, healthy; flowers late; fruit-stems short, thick, prostrate; fruit large, drops in size, round-conic, distinctly necked, attractive medium red, medium in juiciness and firmness, pleasantly sprightly, with red flesh; good; midseason. May have value as a sprightly variety but must be planted closely to secure a large yield.

Ida. 1. *Gard. Mon.* **8**:184. 1866. 2. Downing *Fr. Trees Am.* 990. 1869.

Originated with E. H. Cocklin, Shepherdstown, Pennsylvania, in 1856. Ida was added to the catalog of the American Pomological Society in 1871 and removed in 1877. Imperfect. Plants very numerous, vigorous, very productive; fruit medium in size, roundish conic, dark red; flesh moderately firm, juicy, acid; good; early.

Ideal. 1. *Am. Gard.* **17**:66. 1896. 2. *N. Y. Sta. Bul.* **147**:186. 1898.

Raised in 1889 by J. W. Kerr, Denton, Maryland, as a cross between Bubach and Hoffman. Perfect. Plants medium in number, vigorous, moderately productive; fruit large, round-conic, dark scarlet; flesh dark red, firm, acid; good; midseason.

Ideal (of Cooper). 1. *Am. Pom. Soc. Rpt.* 166. 1920.

Introduced in 1917 by Samuel Cooper, Delevan, New York. As grown here the plants are few, of medium vigor, healthy, variable in yield; autumn-bearing; flowers early, small; fruit-stems short, thick, erect; fruit variable in size, round-conic, glossy medium red; flesh moderately juicy, tender, subacid; poor; early.

Ideal (of Haynes). 1. *Ohio Sta. Bul.* **236**:225. 1912.

Originated with J. W. Haynes, Delphi, Indiana; introduced in 1910. Perfect. Plants numerous, vigorous, productive; fruit large, irregular, oval-conic to wedge-shape, slightly necked, with color variable from scarlet to pink; flesh salmon, soft, mild; good; late midseason.

Idora. 1. *Ohio Sta. Bul.* **236**:225. 1912.

A chance seedling found in Idora Park, Youngstown, Ohio, by T. B. Carlisle, Lisbon, Ohio; introduced in 1909. Perfect. Plants medium in number, vigorous; fruit large, blunt-conic to wedge-shape, dark red; flesh light red, soft, juicy, mild; good; midseason.

Ima. 1. *Mich. Sta. Bul.* **176**:8. 1899.

Originated with Leroy Brown & Sons, Clyde, Ohio; introduced about 1896. Plants few, vigorous, subject to leaf-spot; fruit small, round-conic, scarlet; flesh firm; fair; midseason.

Indiana. 1. *N. Y. Sta. Bul.* **385**:312. 1914.

Originated by H. J. Schild, Ionia, Michigan, in 1905 as a cross between Red Cross and a seedling, the parentage of which was Dawn by Ionia. When first grown at this Station Indiana made an excellent record, but its later performance has not held up to its earlier promises. It prefers heavy soils. Perfect. On the Station grounds, plants medium in number, vigor, and height, healthy, productive; fruit-stems short, thick, prostrate, much branched; pedicels long, slender; fruit large, retains size well, wedge, with furrowed surface, glossy dark red, medium juicy, very firm, mildly subacid, with well-colored flesh; good; medium early.

Indiana (of Teas). **1.** *Rural N. Y.* **42**:456. 1883. **2.** *Mich. Sta. Bul.* **55**:13. 1889.

A seedling of Charles Downing which originated in 1875 with E. Y. Teas, Dunreith, Indiana. Plants numerous, vigorous, unproductive; fruit medium to large, round-conic, light crimson; flesh medium firm; good; early midseason.

Ionia.

Ionia Market. **1.** *N. Y. Sta. Bul.* **401**:183. 1915.

A seedling of Parker Earle which originated in 1895 with H. J. Schild, Ionia, Michigan. Imperfect. In the Station beds, plants numerous, above medium in vigor and height, productive; fruit-stems thick, prostrate, much branched; fruit large, conic to wedge, necked, glossy medium to dark red, often green-tipped at the tapering apex, firm, subacid to tart; fair to good; early.

Iowa. **1.** *Gen. Farmer* **9**:208. 1848. **2.** Fuller *Sm. Fr. Cult.* 94. 1867.

Iowa Male. **3.** Hooper *W. Fr. Book* 290. 1857.

Early Washington. **4.** *Am. Pom. Soc. Cat.* 40. 1875.

An old sort of western origin; introduced before 1835. From 1840 to 1860 it was a leading sort near Cincinnati, Ohio, where it was grown under the name of Early Washington. The plants thrived on poor soils and produced large crops of fruit which ripened early. The variety was placed in the catalog of the American Pomological Society in 1875 as Early Washington, and was removed in 1879. Perfect. Plants numerous, vigorous, very productive; fruit large, roundish, light orange-scarlet; flesh light red, tender, juicy, acid; poor; early.

Iowa (of Rockhill). **1.** *N. Y. Sta. Bul.* **336**:57. 1911.

A cross between Dunlap and Pan American originated in 1906 by Harlow Rockhill, Conrad, Iowa. Perfect. Plants at this Station, characteristically few, large, vigorous, healthy, very productive; autumn-bearing; fruit large, drops rapidly in size, round-conic, glossy light red, colors unevenly, not very juicy, tender, mildly subacid; fair; midseason.

Iowa Beauty. **1.** *Ann. Hort.* 211. 1891. **2.** *N. Y. Sta. Bul.* **91**:192. 1895.

Originated with C. E. Walworth, Marshall County, Iowa; introduced in 1891. Perfect. At this Station, plants moderately vigorous and productive, numerous; fruit-stems good; fruit medium to large, dark red, round-conic, moderately firm, well flavored; good; midseason.

Irena. **1.** *N. Y. Sta. Bul.* **336**:58. 1911.

A cross supposed to be between Jessie and Warfield which originated in Wisconsin; introduced in 1896 by W. S. Butler, Chetek, Wisconsin. Perfect. Station plants characteristically tall, light green, medium in number, healthy, unproductive; fruit above medium to medium in size, wedge to conic, the surface irregular and roughish, dull light or dark red, inclined to green tips, medium juicy, firm, subacid; fair; very early.

Irene. **1.** *Rural N. Y.* **60**:518. 1901. **2.** Ont. Dept. Ag. *Fr. Ont.* 308, fig. 1914.

Introduced about 1900. It has made an excellent record at the Ontario Agricultural College as a general market sort. Imperfect. Plants numerous, very vigorous, productive; fruit medium in size, regular, round-conic, dark glossy crimson; flesh bright red, firm, juicy, subacid; good; late midseason, long.

Irene (of Illinois). 1. *Va. Sta. Tech. Bul.* **11**:50. 1916.

Originated with E. H. Riehl, Alton, Illinois; introduced in 1908. Perfect. Fruit medium to large, irregular conic, light crimson; flesh medium firm; good; midseason.

Isabella. 1. *N. J. Hort. Soc. Rpt.* 57. 1895. 2. *N. Y. Sta. Bul.* **147**:186. 1898.

Gandy Belle. 3. *N. Y. Sta. Bul.* **64**:8. 1894.

No Name. 4. *Mich. Sta. Bul.* **130**:50. 1896.

Originated with James Lippincott, Jr., Cumberland County, New Jersey; introduced about 1892 as No Name. Perfect. Plants numerous, vigorous, moderately productive; fruit medium to large, irregular round-conic to wedge, dark crimson; flesh medium red, firm, acid; good; late.

Island. 1. *Va. Sta. Tech. Bul.* **11**:50. 1916.

Island King. 2. *Md. Sta. Bul.* **160**:212. 1911.

A seedling of Lovett which originated with Irwin Joyce, of Canada; introduced in 1909. Perfect. Plants numerous, medium in vigor; fruit medium to large, irregular roundish conic, dark crimson; flesh red, firm, juicy, mildly subacid; fair; midseason.

Itasca. 1. *Gard. Mon.* **28**:366. 1886.

Itaska. 2. *N. Y. Sta. Bul.* **24**:333. 1890.

Originated with J. H. Haynes, Delphi, Indiana, as a cross between Manchester and Seneca Queen; introduced in 1886. Imperfect. As grown here, plants medium vigorous, productive; fruit-stems long, slender; fruit round-conic, medium in size, firm, subacid; good; midseason.

Ivanhoe. 1. *Rural N. Y.* **48**:522. 1889. 2. *N. Y. Sta. Bul.* **24**:333. 1890.

A cross between Crescent and President Lincoln raised by George W. Trowbridge, Glendale, Ohio, about 1881. Perfect. On the Station grounds, plants vigorous, numerous, healthy, productive; fruit-stems stiff, erect; fruit large to very large, round-conic, bright glossy red, firm, with dark red flesh, well flavored; very good to best.

James. 1. *Va. Sta. Tech. Bul.* **11**:50. 1916.

James E. 2. *Peninsula Hort. Soc. Rpt.* 84. 1916.

Originated in Virginia; introduced in 1915. Perfect. Berries large, light crimson, moderately firm; good; early.

James Todd. 1. *N. Y. Sta. Bul.* **401**:183. 1915.

A chance seedling found in 1906 by Henry Schnell, Glasgow, Missouri. Imperfect. As grown here, plants vigorous, healthy, medium in number and yield; fruit-stems short, semi-erect; fruit large to medium, decreasing in size, irregular wedge or conic, glossy medium red, often with poorly developed apex, very juicy, firm, pleasantly flavored, sprightly; good; midseason. Of doubtful value.

James Vick. 1. *Gard. Mon.* **24**:305. 1882. 2. *N. Y. Sta. Bul.* **24**:334. 1890.

Moonstone. 3. *W. N. Y. Hort. Soc. Rpt.* 24. 1882.

Vick. 4. *Mich. Hort. Soc. Rpt.* 216. 1891.

A chance seedling originated about 1878 by Samuel Miller, Bluffton, Missouri; included in the American Pomological Society's fruit catalog from 1883 to 1897. Perfect. On

the Station grounds, plants vigorous, stocky, numerous, healthy, set a wonderful crop but mature very few; fruit-stems short; fruit medium to small, round-conic, light glossy red, medium firm, acid; fair; medium late.

Jarbalo. 1. *Mich. Sta. Bul.* **142**:150. 1897.

A seedling of Frances Cleveland originated by James Stayman, Leavenworth, Kansas; introduced about 1892. Perfect. Berries large, round-conic, light crimson, firm; good; midseason.

Jay Gould. 1. *N. Y. Sta. Bul.* **91**:192. 1895.

Gould. 2. *Del. Sta. Bul.* **28**:7. 1895.

Originated in eastern Ohio in 1887. Imperfect. In the Station beds, plants very vigorous, numerous, unproductive; blossoms with Sharpless; fruit-stems long; fruit medium or below, glossy red, round-conic, firm; good; midseason.

Jenny.

Jenny's Seedling. 1. *Gen. Farmer* **9**:208. 1848. 2. Downing *Fr. Trees Am.* 991. 1869.

Originated in 1845 by a Mr. Jenny, New Bedford, Massachusetts. Included in the American Pomological Society's fruit catalog from 1862 to 1869. Imperfect. Berries medium to large, round-conic, dark crimson, firm, acid; good; late.

Jenny Lind. 1. *Mag. Hort.* **20**:132. 1854.

Originated in 1852 as a seedling of Old Scarlet by Isaac Fay, Cambridge, Massachusetts; included in the American Pomological Society's list of recommended fruits from 1862 to 1879. Perfect. Berries medium, conic, with a short neck, scarlet, firm, subacid; good; early.

Jerry Rusk. 1. *Am. Gard.* **20**:510. 1899.

Originated with Ran Benoy, Matthews, Indiana, as a cross between Bubach and Jessie; introduced in 1894. Perfect. Berries large, irregular, crimson, firm, subacid; good; midseason.

Jersey Market. 1. *Ohio Sta. Bul.* **98**:69. 1899.

Of New Jersey origin; introduced in 1896. Imperfect. Berries medium in size, round-conic, light crimson, firm; good; midseason.

Jersey Queen. 1. *W. N. Y. Hort. Soc. Rpt.* 27. 1881. 2. *Rural N. Y.* **42**:787. 1883.

Originated in 1878 by E. W. Durand, Irvington, New Jersey; included in the American Pomological Society's fruit catalog from 1881 to 1899. Imperfect. At this Station, plants vigorous, low growing, attacked by leaf-spot, productive; fruit large, round-conic to oblate-conic, glossy light red, soft, well flavored, subacid; very good; midseason.

Jessie. 1. *Mich. Hort. Soc. Rpt.* 270. 1885. 2. *Am. Pom. Soc. Rpt.* 44. 1889. 3. *N. Y. Sta. Bul.* **218**:197. 1902.

This old variety is now little grown in any part of the United States excepting central California and even there is being discarded. It was for so many years a standard and representative of so distinct a type that it is included among the major varieties in this text. The outstanding asset of the variety was its great adaptability to soils and climates.

This sort originated in 1880 with F. W. Loudon, Janesville, Wisconsin, as a cross between Sharpless and Miner; introduced in 1886; cataloged by the American Pomological Society in 1889.

Semi-perfect to perfect. Plants variable in number and yield, vigorous, tall, susceptible to leaf-spot; leaves large, thin, light green, dull. Flowers midseason, large; petals 5–8, large; stamens variable in number; receptacle medium in size. Fruit midseason to late; fruit-stems long, slender, erect; pedicels long, slender; calyx variable in position; sepals intermediate in length and width; berries medium to very large, usually wedge but vary to irregularly round-conic, the largest berries often furrowed and occasionally coxcomb; apex obtuse; color glossy light to dark red; seeds sunken; flesh light red, firm, juicy, aromatic, subacid to pleasantly sprightly; quality good.

Jewel.

Originated in 1919 by George Brandvig as a chance seedling in a bed of Superb. Semi-perfect to imperfect. Station plants very few, weak, dwarfish, medium productive, healthy; autumn-bearing; flowers early, very small; fruit-stems short, prostrate; fruit medium to small, round-conic to blunt-conic, glossy medium red, juicy, medium firm, subacid, with red flesh; fair; early.

Jewell. 1. *Rural N. Y.* **43**:445, fig. 212. 1884. 2. *N. E. Homestead* 265. 1885.

Originated in 1880 with P. M. Augur & Sons, Middlefield, Connecticut. Imperfect. As grown here, plants vigorous, very few, healthy, unproductive; fruit-stems very short; fruit large, oblong-conic, glossy dark red, firm, well flavored, acid; very good; early to midseason.

Jewell Improved. 1. *Am. Pom. Soc. Rpt.* 166. 1920.

A seedling of Miller raised on the Underwood Farm, Lake City, Minnesota. Perfect. Plants very productive; berries large, uniform, dark red, firm; good.

Jim. 1. *Rural N. Y.* **58**:514. 1899. 2. *N. Y. Sta. Bul.* **218**:197. 1902.

Originated with J. H. Black, Son & Company, Hightstown, New Jersey. Imperfect. In the Station beds, plants vigorous, numerous, healthy; fruit medium to large, drops in size, chunky round-wedge, light red, medium juicy, soft, well flavored; good; midseason.

Jim Dumas. 1. *Md. Sta. Bul.* **160**:202, 212. 1911.

Originated with Louis Hubach, Judsonia, Arkansas; introduced in 1907. Perfect. Berries medium in size, irregular conic, dark crimson; flesh dark red, firm, acid; fair; early.

Joe. 1. *Rural N. Y.* **56**:471. 1897. 2. *N. Y. Sta. Bul.* **276**:71. 1906.
Joe Johnson. 3. *Ibid.* **447**:71. 1918.

The outstanding merits of Joe are large, handsome, well-flavored berries, which are suitable for either home use or the markets. The plants are satisfactory in all respects except in hardiness, so that the variety is a favorite only in the comparatively warm strawberry regions of Maryland, New Jersey, Delaware, and eastern New York. The plants are exceedingly productive, therefore the variety is a very desirable kind for intensive culture. Joe originated with J. H. Black, Son & Company, Hightstown, New Jersey; introduced by this company in 1899.

JESSIE

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Perfect. Plants few, vigorous, tall, healthy, productive when planted closely; leaves medium to very large, dark green, thick, dull, rugose. Flowers late, large; petals 5–7, large; stamens numerous; receptacle large. Fruit late midseason, holding up well in size; fruit-stems long, thick, semi-erect; pedicels long; calyx often large, leafy, usually flat, well colored; sepals very broad; berries large to very large, blunt, round-conic or irregular wedge, the surface often furrowed; apex obtuse; color glossy dark red; seeds raised; flesh dark red throughout, firm, agreeably acid, highly flavored; quality very good.

Joe Crampton. 1. *N. Y. Sta. Bul.* **447**:71. 1918.

Found in an old patch of berries by Henry Gersandi, Berien County, Michigan; introduced in 1912. Perfect. Plants at this Station, below medium in vigor and number, severely injured by leaf-spot, unproductive; fruit-stems slender, erect; fruit variable in size, irregular blunt-conic to wedge, necked, dull light red, very juicy, firm, sprightly, with whitish center; good; very late. Inferior in plant and fruit characters.

Joe Wheeler. 1. *Va. Sta. Tech. Bul.* **11**:51. 1916.

Gen. Joe Wheeler. 2. *Md. Sta. Bul.* **124**:180. 1907.

A seedling of Thompson which originated in the South; introduced about 1905. Perfect. Plants small; berries medium in size, conic, with a slight neck, dark crimson, moderately firm; fair; early.

John H. Cook. 1. *N. Y. Sta. Bul.* **447**:71. 1918.

Raised by Dr. Walter Van Fleet, Washington, D. C., in 1908, as a chance seedling. Perfect. On the Station grounds, plants few, medium in vigor and size, healthy, medium productive; fruit-stems short, thick, prostrate; fruit medium to very large, irregularly wedge, furrowed, glossy, medium to dark red, juicy, firm, subacid, with hollow center; good; medium early. Has several qualities to commend it.

Johnson. 1. *Md. Sta. Bul.* **124**:182. 1907.

Johnson's Early. 2. *Am. Gard.* **21**:630. 1900.

Originated in 1893 with O. A. Johnson, Manokin, Maryland, as a cross between Crescent and Hoffman. Perfect. Berries large, round-conic or irregularly necked, light crimson; flesh light red, firm, acid; good; early.

Johnson Late. 1. *N. Y. Sta. Bul.* **24**:333. 1890.

Originated as a chance seedling in 1885 with R. Johnson, Shortsville, New York. Imperfect. At this Station, plants vigorous, stocky, low growing, injured by leaf-spot, unproductive; leaves thick, very dark green; fruit large, conic, very light red, soft, almost white, sweet; good; very late.

Jones Seedling. 1. *Va. Sta. Tech. Bul.* **11**:51. 1916.

Originated with Adams Jones, Plainfield, Indiana; introduced about 1888. Perfect. Berries large, conic, dark crimson; flesh dark red, firm; good; midseason.

Jopp. 1. *Va. Sta. Tech. Bul.* **11**:52. 1916.

Jopp's Favorite. 2. *N. Y. Sta. Bul.* **447**:71. 1918.

A chance seedling which originated with W. H. Jopp, Denton, Maryland, in 1911. Perfect. Station plants numerous, vigorous, healthy, unproductive; fruit-stems long, erect;

fruit unusually large, blunt-wedge, necked, dull medium to dark red, juicy, firm, subacid, with red flesh; fair; very late.

Jucunda. 1. *Mag. Hort.* **28**:30. 1862. 2. *Gard. Mon.* **8**:280. 1866.
Abraham Lincoln. 3. *Horticulturist* **24**:232. 1869.
President Lincoln. 4. *Ia. Hort. Soc. Rpt.* 415. 1882.
Lincoln. 5. *Gard. & For.* **6**:336. 1893.

This variety originated with John Salter, Hammersmith, England. It was imported to this country by W. R. Prince, Flushing, New York, in 1859, and for many years was a standard sort for heavy rich soils and intensive culture. The American Pomological Society added the variety to its list of recommended fruits in 1869. It has long been out of general culture on this side of the Atlantic. Perfect. Plants variable in number and in freedom from leaf-spot, usually productive, medium in height and vigor; fruit-stems long, thick, erect; calyx large, flat, leafy; sepals very broad; berries large, irregular blunt-wedge to blunt-conic, light red, somewhat dull and unattractive; flesh whitish towards the center, variable in firmness, sweet, mildly subacid; good; late.

Jucunda Improved. 1. *Am. Pom. Soc. Rpt.* 82. 1891.

A seedling of Jucunda originated in 1882 by A. V. Gerbig, Pennsylvania. Perfect. In the Station beds, plants vigorous, productive; berries large, round-conic, light crimson, firm, subacid; good; midseason.

Judith. 1. *Mass. Hort. Soc. Rpt.* 176. 1915.

Originated by Dr. F. S. DeLue, Needham, Massachusetts. Semi-perfect to imperfect. As grown here, plants numerous, vigorous, productive, healthy; fruit-stems long, thick, semi-erect; pedicels long, slender; calyx flat, large; fruit large, blunt-wedge to blunt-conic, glossy medium to dark red, juicy, firm, red to the center, highly flavored, sprightly; very good; early. Worthy of trial.

Judsonia. 1. *Mich. Sta. Bul.* **130**:48. 1896.

Originated with J. C. Bauer, Judsonia, Arkansas; introduced about 1892. Perfect. Berries medium in size, irregular round-conic, light crimson, firm; good; early.

Julia. 1. *Can. Exp. Farms Rpt.* 298. 1913.

A seedling of Bubach originated in 1906 at the Central Experimental Farm, Ottawa, Canada. Imperfect. Plants vigorous, productive; berries large, conical to wedge-shape, bright glossy red; flesh deep pink, tender, juicy, subacid; good; midseason.

Julien. 1. *Mag. Hort.* **33**:167. 1867.

Originated about 1860 by W. F. Cramer, Dubuque, Iowa, as a seedling of Peabody. Berries medium in size, roundish oval, with a long neck, scarlet, moderately firm, sweet; good.

July. 1. *N. Y. Sta. Bul.* **336**:58. 1911.

This is a cross between Warfield and Ionia which originated with H. J. Schild, Ionia, Michigan, in 1902. Imperfect. On the Station grounds, plants medium in number and size, healthy, productive; flowers late, large, show distinctly above the foliage; fruit above medium in size, quickly becomes smaller, conic, light red, very juicy, medium firm, tart; fair; midseason. Inferior to the best varieties.

JOE

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Jumbo. 1. *N. E. Homestead* 328. 1885.

Introduced in 1883 by A. M. Purdy, Palmyra, New York. Perfect. In the Station beds, plants vigorous, numerous, nearly healthy, medium productive; fruit-stems stiff; calyx very large; fruit usually very large, obtuse- to oblate-conic, glossy light red, soft, slightly acid, pleasantly flavored; fair; early to midseason.

Jumbo (of Farmer). 1. Farmer *Cat.* 1925.

Originated about 1915 with James Cliff, Oswego, New York. Perfect. Berries large, round, blunt or flat at the apex; good; late.

Kalicene. 1. *Am. Pom. Soc. Rpt.* 292. 1921.

Originated by Albert F. Etter, Ettersburg, California, as a cross between Ettersburg No. 216 and Trebla. It has little merit at this Station. Perfect. Plants numerous, vigorous, healthy, productive; fruit-stems thick, erect; pedicels long, slender; fruit hidden by the foliage, medium to small, conic, glossy medium red, moderately juicy, very firm, tough and whitish at the center, subacid; fair; very early.

Kansas. 1. *Rural N. Y.* **60**:518. 1901. 2. *N. Y. Sta. Bul.* **276**:72. 1906.

A chance seedling which originated with J. J. Whittman, Emporia, Kansas; introduced in 1900. Imperfect. At this Station, plants medium to numerous, moderately vigorous, healthy, productive; fruit-stems thick; fruit above medium to medium in size, decreases rapidly, round-conic to wedge, the tip ending in a depression, with an irregularly furrowed surface, glossy medium red, firm, juicy, mildly acid, well flavored; good to very good; midseason. Not a large berry but worthy of trial because of good yield, attractive color, good flavor and quality.

Kansas Prolific. 1. *Mich. Sta. Bul.* **142**:153. 1897.

A seedling of Warfield which originated with James Stayman, Leavenworth, Kansas; introduced about 1896. Perfect. Plants numerous, vigorous, productive; fruit medium in size, round-conic, dark crimson; flesh medium firm; good; early midseason.

Karl. 1. *Mich. Sta. Bul.* **148**:57. 1897.

Originated with F. G. Stahelin, Bridgman, Michigan; introduced about 1895. Perfect. Plants numerous, very vigorous, unproductive; fruit small, irregular, dark crimson; flesh soft; poor; late.

Katie. 1. *Mich. Sta. Bul.* **100**:8. 1893.

Originated with J. H. Haynes, Delphi, Indiana; introduced about 1890. Perfect. Plants numerous, vigorous, unproductive; fruit medium to large, round-conic, dull crimson; flesh dark red, soft; good; midseason.

Keens Seedling. 1. *Trans. Lond. Hort. Soc.* **5**:261, Pl. 12. 1824.

2. Downing *Fr. Trees Am.* 531. 1845.

This old English sort was raised from seed by Michael Keens, Isleworth, England, in 1819. It was first exhibited before the Horticultural Society of London in 1821, and was introduced into this country about 1824. From 1830 to 1840 it was a standard variety in the gardens of amateurs. The plants were tender and required high cultivation. The

variety is still grown in England. Perfect. Plants medium in number, vigorous, tender, productive; fruit large, roundish ovate to coxcombed, dark scarlet; flesh light red, firm, rich; very good; early.

Kellko. 1. Kellogg *Cat.* 22. 1919.

Introduced in 1919 by the R. M. Kellogg Company, Three Rivers, Michigan; said by them to have been originated by Albert F. Etter, Ettersburg, California. Perfect. Station plants medium in number, vigor, and height, unproductive, healthy; flowers late, very large; fruit-stems short, thick; calyx large, leafy, with very broad sepals; fruit above medium to small, blunt-wedge to chunky-conic, medium to dark glossy red, very juicy, firm, sprightly; very good; midseason.

Kellogg. 1. *Va. Sta. Tech. Bul.* **11**:53. 1916.

Kellogg's Prize. 2. *N. Y. Sta. Rpt.* **447**:71. 1918.

Kellogg was found as a chance seedling in 1906 by R. M. Sears, La Grange, Illinois; introduced in 1913 by R. M. Kellogg Company, Three Rivers, Michigan. An imperfect-flowering variety of good plant habits, maturing late and shipping well. Imperfect. Plants medium or below in number and vigor, healthy, productive; flowers very large; fruit-stems thick, prostrate; fruit above medium to large, blunt-conic to blunt-wedge, necked, medium to light red; flesh light red, juicy, firm, sprightly; fair to good; late.

Kentucky. 1. *Gard. Mon.* **11**:247, 280, fig. 1869. 2. *N. Y. Sta. Bul.* **24**:334. 1890.

A seedling of Downer Prolific originated by J. S. Downer, Fairview, Kentucky; introduced in 1869. Until about 1885 Kentucky was a standard sort for home use and local markets. In 1871 the name was added to the catalog of the American Pomological Society, from which it was removed in 1897. Perfect. As grown here, plants very vigorous, numerous, attacked by leaf-spot, moderately productive; fruit of medium size, conic, glossy red, soft, sprightly; good; late.

Kevitt. 1. *Ohio Sta. Bul.* **364**:81. 1923.

Kevitt Wonder. 2. *N. Y. Sta. Bul.* **336**:58. 1911.

Originated by T. C. Kevitt, Athenia, New Jersey, in 1906 as a cross between Bismarck and Parker Earle. Perfect. On the Station grounds, plants few, small, healthy, productive; fruit above medium in size, oblong-conic, necked, glossy medium red, not juicy, medium firm, mild, with inferior flavor; poor; midseason.

Kevitt Best. 1. *Mich. Sta. Bul.* **189**:116. 1901.

Originated by T. C. Kevitt, Athenia, New Jersey; introduced about 1899. Perfect. Plants few, weak, unproductive; fruit small, irregular, scarlet, soft, acid; poor; midseason.

Keystone. 1. *Ohio Sta. Bul.* **236**:226. 1912.

Originated with T. B. Carlisle, Lisbon, Ohio; introduced in 1909. Imperfect. Plants very numerous, vigorous; fruit irregular, scarlet; flesh firm; poor; early midseason.

Killarney. 1. *N. Y. Sta. Bul.* **401**:184. 1915.

Originated in 1904 by John F. Nickerson, Chatham, Massachusetts, as a cross between Maximus and Jessie. Perfect. In the Station beds, plants very numerous, above medium in vigor, productive, attacked by leaf-spot; fruit-stems short, thick, prostrate; fruit very large, strongly furrowed, wedge, dull dark red, juicy, firm, subacid; good; midseason.

Kincks. 1. *N. Y. Sta. Bul.* **64**:9. 1894.

Originated with Clark Hewitt, Waupun, Wisconsin; introduced about 1892. Perfect. Plants at this Station, few, productive, healthy; fruit medium to large, glossy red, soft; good; midseason to late.

King Edward. 1. *N. Y. Sta. Bul.* **309**:530. 1908.

Originated by D. J. Miller, Millersburg, Ohio, in 1903 as a seedling of Miller. Perfect. At this Station, plants medium in number, lack in vigor, healthy, very productive; fruit above medium to medium in size, soon becoming small, round-conic or wedge, dull light red, firm, mild, sweet, well flavored; good; midseason.

King Philip. 1. *Md. Sta. Bul.* **124**:183. 1907.

Introduced about 1905. Perfect. Plants numerous, vigorous, unproductive; fruit large, irregular roundish to wedge-shape, bright scarlet; flesh pink, firm, juicy, subacid; good; late.

King Solomon. 1. *Va. Sta. Tech. Bul.* **11**:53. 1916.

King Sol. 2. *Ohio Sta. Bul.* **236**:226. 1912.

Introduced about 1910. Perfect. Plants numerous, very productive; fruit large, conic, light scarlet; flesh red, firm, juicy, sweet; good; early midseason.

King Wealthy. 1. Potter *Cat.* 9. 1918.

Originated in 1911 with H. J. King, Jackson, Michigan. Perfect. Station plants few to medium, intermediate in vigor and height, productive, healthy; fruit-stems semi-erect; calyx very large, raised, very leafy; fruit above medium to small, round-conic, glossy dark red, juicy, sprightly; good; very late.

King Worthy. 1. *Mich. Sta. Bul.* **163**:168. 1898.

Originated with E. W. Cone, Menomonie, Wisconsin; introduced about 1896. Plants few, vigorous, unproductive; fruit large, round-conic, light dull scarlet; flesh light red, soft; fair; midseason.

Kissena. 1. *Horticulturist* **30**:50. 1875.

Kissany. 2. *Mich. Hort. Soc. Rpt.* 98. 1877.

Originated in 1850 by G. W. Huntsman, Flushing, New York, as a cross between British Queen and a variety of *Fragaria virginiana.* Perfect. Plants medium in vigor and productivity; fruit medium in size, long-conic, sometimes coxcombed, light scarlet; flesh white, moderately firm, mildly subacid; good; midseason.

Kittie Rice. 1. *Am. Gard.* **24**:332. 1903. 2. *N. Y. Sta. Bul.* **336**:59. 1911.

Downing's Bride. 3. *Am. Gard.* **21**:630. 1900.

Originated by John F. Beaver, Dayton, Ohio, about 1890. Sent out as a premium in 1896 by Matthew Crawford, Cuyahoga Falls, Ohio, under the name of Downing's Bride. In 1903 the name was changed to Kittie Rice. Imperfect. On the Station grounds, plants of medium number, above medium in size, healthy, productive; fruit-stems medium to long, moderately thick, prostrate; calyx large, flat, leafy; seeds raised; fruit above medium in size, conic or wedge, glossy medium red, very juicy, highly flavored, light red at the center, moderately firm, sprightly at first, becoming sweet; very good to best; midseason.

Klickita. 1. *Ann. Hort.* 134. 1893. 2. *Ohio Sta. Bul.* **85**:14. 1897.

Originated with E. W. Cone, Menomonie, Wisconsin, as a chance seedling. Imperfect. Plants vigorous, moderately productive; fruit medium to large, conic, regular, scarlet; flesh firm; good; midseason.

Klondike. 1. *Am. Gard.* **19**:534. 1898. 2. *N. Y. Sta. Bul.* **309**:531. 1908. 3. *Va. Sta. Tech. Bul.* **11**:54. 1916.

This variety is grown almost exclusively in some parts of the South in commercial plantations. It usually fails in all the northern states. Its popularity is due to adaptability to a great diversity of soils, to plants which are fairly free from disease, and to the firm flesh and deep red color of the berries, the last two characters fitting it for shipping and canning. The quality is scarcely above mediocre, and the hulls do not part readily from the berries,—serious defects for a home plantation. Klondike originated with R. L. Cloud, Independence, Louisiana, as a cross between Pickerproof and Hoffman; introduced in 1901; placed in the American Pomological Society's fruit catalog in 1909.

Perfect. Plants vigorous, usually healthy, productive; leaves dark green, thin, glossy, rugose. Flowers midseason, large; petals 6–7, large; stamens numerous; receptacle medium in size. Fruit midseason; fruit-stems long, thick, erect; pedicels short, slender; calyx large, flat or sunken, reflexed, often tinged dull red; sepals long, narrow; berries large, retain size well, round-conic to blunt-wedge; apex obtuse; color light to dark rather dull red, variable in glossiness; seeds sunken; flesh well colored to the center, firm, juicy, sprightly to acid; quality fair or below.

Knight. 1. *Mich. Sta. Bul.* **163**:68. 1898.

Introduced about 1896. Perfect. Plants very vigorous, productive; fruit large, round-conic, dark glossy scarlet; flesh light red, firm; very good; late.

Kossuth. 1. *Mich. Sta. Bul.* **142**:153. 1897.

Originated by James Stayman, Leavenworth, Kansas; introduced about 1893. Perfect. Plants numerous, vigorous, productive; fruit large, irregular, round-conic, dark crimson; flesh dark red, firm; good; early.

Kramer. 1. *Gard. Mon.* **9**:213. 1867.

Originated in 1863 by F. W. Kramer, Dubuque, Iowa, as a seedling of Wilson. Semi-perfect to perfect. Plants vigorous, productive; fruit medium in size, round-conic, dark red; flesh moderately firm, juicy, acid; good.

Kuropatkin. 1. *Md. Sta. Bul.* **124**:183. 1907.

Originated at the Maryland Agricultural Experiment Station, College Park, Maryland, in 1907 as a cross between Belt and an unnamed seedling. Perfect. Plants numerous, medium in vigor and productivity; fruit below medium in size, round-conic, bright scarlet; flesh red, medium firm, juicy, subacid; fair; early.

Kyle. 1. *Can. Exp. Farm Bul.* **62**:33. 1909.

Kyle No. 1. 2. *Mich. Sta. Bul.* **130**:50. 1896.

A chance seedling which originated in 1889 with W. C. Babcock, Bridgman, Michigan. Perfect. Plants numerous, very vigorous; fruit large, roundish, pale red; flesh light red, soft; poor; late midseason.

KLONDIKE

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La Baron. 1. Downing *Fr. Trees Am.* 676. 1857.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Perfect. Plants very productive; berries very large, obtuse-conic, dark scarlet, sweet, soft; very good.

La Belle. 1. *Ohio Sta. Bul.* **178**:50. 1906.

Labell. 2. *N. Y. Sta. Bul.* **336**:59. 1911.

A chance seedling which originated about 1899 with E. H. Ekey, Steubenville, Ohio. Imperfect. On the Station grounds, plants few, medium in size and vigor, healthy, productive; fruit large, soon becoming smaller, long-wedge or conic, necked, variable in color, dull, very juicy, firm, tart; fair; late. Of doubtful value.

La Bon. 1. *N. Y. Sta. Bul.* **447**:72. 1918.

A seedling of unknown parentage raised by H. J. Schild, Ionia, Michigan, in 1909. Perfect. As grown here, plants numerous, vigorous, healthy, productive; fruit large, irregularly furrowed, roundish oblate, glossy light red, colors unevenly, not juicy, medium firm, with a hollow center, subacid; fair; medium early.

La Constante. 1. *Mag. Hort.* **25**:497. 1859. 2. Hogg *Fruit Man.* 749. 1884.

Raised in 1854 by M. de Jonghe, Brussels, Belgium; introduced to North America about 1858; included in the fruit catalog of the American Pomological Society from 1862 to 1871. Perfect. Plants dwarf, productive; berries large, round-conic, bright crimson; flesh whitish, with a rose tint, firm, sweet, highly aromatic; very good to best; late; highly esteemed for home use about 1860 to 1870.

Lacon. 1. *Gard. Mon.* **21**:303. 1879.

Originated by E. R. McKinney, Lacon, Illinois; introduced about 1882. Semi-perfect. Plants vigorous, productive; berries large, conic, crimson, firm, acid; good; midseason.

Lady Corneille. 1. *N. Y. Sta. Bul.* **447**:72. 1918.

A seedling of unknown parentage which originated in 1909 with Mrs. T. C. Corneille, Ponchatoula, Louisiana. Perfect. In the Station beds, plants numerous, vigorous, usually healthy, unproductive; fruit-stems short, thick, semi-erect; fruit above medium in size, furrowed, wedge to blunt-conic, necked, dark red, juicy, firm, white towards the center, sprightly; fair; medium early.

Lady Finger. 1. *Gard. Mon.* **2**:262, 334. 1860.

Originated by Benjamin Prosser, Burlington, New Jersey; introduced prior to 1860. Perfect. Berries medium in size, very long-conic, dark scarlet, firm, subacid; very good; early.

Lady Franklin. 1. *Ohio Sta. Bul.* **85**:14. 1897.

Originated with H. G. Wolfgang, Salem, Ohio; introduced about 1896. Imperfect. Berries large, round-conic, light scarlet, moderately firm; good; midseason.

Lady Jane. 1. *Va. Sta. Tech. Bul.* **11**:55. 1916.

Originated with J. A. Bauer, Judsonia, Arkansas, as a cross between Haverland and Hoffman. Perfect. Berries medium in size, long, irregular, scarlet, firm; good; early.

Lady of the Lake. 1. *Gard. Mon.* **15**:133. 1873.

Originated with John C. Scott, Brighton, Massachusetts, in 1862. Imperfect. Berries large, irregular conic, with a long neck, light crimson; flesh light red, firm, sweet, dry; good; midseason.

Lady Rusk. 1. *Rural N. Y.* **50**:527. 1891.

Originated as a chance seedling in 1884 with William Stahl, Quincy, Illinois. Perfect to semi-perfect. Plants at this Station, medium in number and yield; fruit-stems short; fruit small, decidedly variable in shape, very dark red, firm; fair; midseason.

LaFollette. 1. *Va. Sta. Tech. Bul.* **11**:55. 1916.

Originated with W. J. Moyle, Union Grove, Wisconsin, as a seedling of McKinley; introduced in 1915. Perfect. Berries large, oblong-conic, light crimson, acid; midseason.

Lanah. 1. *Ohio Sta. Bul.* **85**:17. 1897.

Lanahan. 2. *Mich. Sta. Bul.* **169**:147. 1899.

Originated in Mississippi; introduced in 1894. Perfect. Berries medium to below in size, conic, bright scarlet, very firm; good; midseason to late.

Large Climax. 1. *Gard. Mon.* **8**:302. 1866.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Imperfect. Plants vigorous, productive; berries large, obtuse-conic, dark scarlet; flesh whitish, sweet; good.

Large Early Scarlet. 1. Prince *Pom. Man.* **2**:177. 1832. 2. *Mag. Hort.* **16**:70. 1850. 3. Downing *Fr. Trees Am.* 993. 1869.

One of the oldest varieties of American origin and together with Hovey was for many years a leading commercial sort. Its name appeared in the first fruit catalog of the American Pomological Society and remained in the Society's catalog until 1879, when it passed from general cultivation. Perfect. Plants slender, upright, productive; berries medium or below, roundish oval, light scarlet; flesh whitish, moderately firm, subacid; good; very early.

Late Bittner. 1. *Va. Sta. Tech. Bul.* **11**:56. 1916.

Originated with George Bittner, Milan, Ohio; introduced about 1907. Imperfect. Berries large, round-conic to wedge, scarlet, firm, subacid; good; midseason.

Late Champion. 1. *Va. Sta. Tech. Bul.* **11**:56. 1916.

Townsend's Late Champion. 2. *N. Y. Sta. Bul.* **401**:191. 1915.

Originated as a chance seedling near a bed of Aroma in 1906 with E. W. Townsend, Salisbury, Maryland. Perfect. At this Station, plants medium vigorous, numerous, productive, healthy; fruit-stems short, thick, prostrate, much branched; fruit large, round-conic to blunt-wedge, dull light red, juicy, subacid, whitish toward the center; fair; midseason.

Late Globe. 1. *Gard. Mon.* **8**:280. 1866.

Late Globose. 2. *Va. Sta. Tech. Bul.* **11**:56. 1916.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Imperfect. Plants hardy, vigorous, productive; berries large, roundish, light scarlet, firm; fair; late.

Late Jersey. 1. *Md. Sta. Bul.* **211**:69. 1918.

Late Jersey Giant. 2. *N. Y. Sta. Bul.* **401**:184. 1915.

A seedling of unknown parentage originated in 1907 by Dr. Walter Van Fleet, Little Silver, New Jersey. Perfect. As grown here, plants vigorous, very productive, healthy, medium in number; fruit-stems thick, erect; fruit large, round-conic to blunt-wedge, dull light red, sweet, pleasantly flavored, whitish at the center; good; late.

Late Prolific. 1. *Mag. Hort.* **13**:368. 1847.

Originated with John Burr, Columbus, Ohio; introduced in 1847. Imperfect. Plants vigorous, hardy, productive; berries large, irregular, light crimson, firm, acid; good; late.

Late Prolific (of Durand). 1. *Horticulturist* **25**:226. 1870.

Originated with E. W. Durand, Irvington, New Jersey; introduced in 1870. Berries large, roundish coxcomb, dark scarlet; flesh light red, soft, acid; good; late.

Late Prolific (of Rapp). 1. *Ohio Sta. Bul.* **178**:51. 1906.

Originated in Ohio; introduced in 1905. Perfect. Plants moderately large, and vigorous, productive; berries medium in size, round-conic, ribbed, dark crimson, firm, acid; fair; midseason.

Late Stevens. 1. *Va. Sta. Tech. Bul.* **11**:56. 1916. 2. *U. S. D. A. Farmers' Bul.* **1043**:32. 1919.

Stevens' Late Champion. 3. *Rural N. Y.* **66**:574. 1907. 4. *N. Y. Sta. Bul.* **309**: 548. 1908.

Stevens. 5. *Am. Pom. Soc. Cat.* 51. 1909.

Late Stevens is not so desirable as several other late varieties in New York, but in parts of New Jersey and Delaware it is highly esteemed for both commercial and home plantations. In New York the plants are not always productive, the foliage is susceptible to mildew and leaf-spot and the fruits lack uniformity in shape and size. Neither plants nor fruits stand drouth well, under which condition the berries show the seeds too plainly. This variety was originated by Arthur Stevens, Bridgeton, New Jersey, in 1897; introduced in 1903. The American Pomological Society added the variety to its list of recommended fruits in 1909.

Semi-perfect to perfect. Plants variable in number and health, tall, not always productive, vigorous; leaves large, dark green, dull, slightly rugose. Flowers midseason or late, large; petals 6–8; stamens few to numerous; receptacle large. Fruit late to very late; fruit-stems semi-erect; pedicels long, slender; calyx medium to above in size, often leafy, attractive green, slightly sunken; sepals long, broad; berries large, retain size well, irregular in shape, varying from coxcomb to wedge or round-conic; apex obtuse; color attractive light red; seeds depressed; flesh well colored to the center, firm, agreeably acid, pleasantly flavored; quality good.

Late Thompson. 1. *Va. Sta. Tech. Bul.* **11**:56. 1916.

Thompson's Late. 2. *Can. Cent. Exp. Farm Bul.* **27**:20. 1897.

Originated with Mark T. Thompson, Rio Vista, Virginia; introduced about 1896. Imperfect. Plants vigorous; berries medium in size, conic, dark crimson; flesh dark red, firm, acid; good; late.

Latest. 1. *Am. Gard.* **24**:333. 1903. 2. *N. Y. Sta. Bul.* **309**:531. 1908.

Originated in 1895 by S. H. Warren, Weston, Massachusetts, as a cross between Jewell and Belmont. Imperfect. Station plants very few, medium in vigor, healthy, unproductive; fruit poorly protected from the sun, large to medium, very irregular in shape, dull light and dark red, medium firm, mildly acid, with whitish flesh; fair; late.

Latest of All. 1. *N. Y. Sta. Bul.* **401**:184. 1915.

Received at this Station in 1910 from Vilmorin-Andrieux Nursery Company, Paris, France. Perfect. On the Station grounds, plants small, low growing, medium in number, weak, unproductive; fruit-stems short, thick; fruit of medium size, conic to wedge, dull light red, often green tipped, sweet, mild, whitish toward the center; fair; late.

Laurel Leaf. 1. *Va. Sta. Tech. Bul.* **11**:56. 1916.

Originated with A. N. Jones, Leroy, New York; introduced about 1879. Perfect. Berries medium in size, round-conic, light scarlet, soft; good.

Laurella. 1. *Horticulturist* **25**:227. 1870.

Introduced about 1868. Imperfect. Plants very productive; berries large, round-conic, scarlet; flesh light red, soft, acid; fair.

Lawrencia. 1. *Gard. Mon.* **8**:280. 1866.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Imperfect. Plants hardy, vigorous, very productive; berries large, round-conic, light scarlet, sweet, juicy; good.

Laxton Latest. 1. *N. Y. Sta. Bul.* **401**:184. 1915.

Received at this Station from Vilmorin-Andrieux Nursery Company, Paris, France. Perfect. In the Station beds, plants few, medium in vigor, unproductive, attacked by leaf-spot; fruit-stems slender, prostrate; fruit of medium size, wedge to long-conic, glossy light to dark red, juicy, subacid, inferior in flavor; poor; late.

Lea. 1. *N. Y. Sta. Bul.* **401**:184. 1915.

Originated by Thomas J. Custis, Craddockville, Virginia, in 1907. Perfect. Plants at this Station, few, medium in vigor, health and yield; fruit-stems slender, prostrate; fruit small, conic, glossy red, juicy, tart, inferior in flavor; fair; early.

Leader. 1. *Gard. & For.* **6**:336. 1893. 2. *Colo. Sta. Bul.* **53**:18. 1900.

Originated with J. B. Campbell, North Reading, Massachusetts; introduced in 1892. Perfect. At this Station, plants vigorous, numerous, moderately productive; fruit-stems good; fruit medium or below in size, dark red, conic, soft, with dark red flesh; fair; early.

Leavell Beauty. 1. *Am. Gard.* **21**:631. 1900.

Originated with B. S. Leavell, Trenton, Kentucky; introduced about 1900. Berries roundish, dark crimson, very firm; good.

Leavell Favorite. 1. *Am. Gard.* **21**:631. 1900.

Another seedling which originated with B. S. Leavell; introduced about 1900. Berries large, scarlet; very good.

LATE STEVENS

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Legal Tender. 1. *Rural N. Y.* **42**:456. 1883. 2. *N. Y. Sta. Bul.* **24**:334. 1890.

Originated with Oscar Felton, Merchantsville, New Jersey, as a cross between Lady Finger and Cinderella; introduced about 1881. Imperfect. Station plants very vigorous, numerous, productive; fruit-stems erect, stiff, holding the fruit well above the foliage; fruit large, bright red, oblong-conic, soft, very sweet, well flavored; early to late.

Lehigh. 1. *U. S. D. A. Pom. Rpt.* 393. 1891.

A seedling of Crescent originated with W. B. K. Johnson, Allentown, Pennsylvania; introduced in 1891. Imperfect. Berries medium in size, round-conic, dark scarlet; flesh light red, firm, acid; fair; midseason.

Lehman. 1. *N. Y. Sta. Bul.* **218**:198. 1902.

Raised by S. J. Lehman, Enon, Ohio, about 1894. Perfect. Berries medium in size, conic, dark crimson, firm; fair; midseason.

Lennig. 1. Downing *Fr. Trees Am.* 994. 1869. 2. *N. Y. Sta. Bul.* **24**:334. 1890.

White Pineapple. 3. *Rural N. Y.* **12**:335. 1861.

Lennig's White Pine. 4. *Mag. Hort.* **28**:400. 1862.

White Albany. 5. *Gard. Mon.* **4**:210. 1862.

Albion White. 6. Thomas *Am. Fruit Cult.* 582. 1885.

Originated about 1858 by a Mr. Lennig, Germantown, Pennsylvania, as a seedling of Wilson; included in the American Pomological Society's recommended fruit list from 1871 to 1883. Perfect. As grown here, plants vigorous, numerous, unproductive; fruit-stems erect, stiff; fruit small, roundish, glossy light red, soft, well flavored, whitish; very good; late. An excellent pollinizer for pistillate kinds as its blooming season is long and the pollen very abundant.

Leon. 1. *Rural N. Y.* **58**:514. 1899. 2. *N. Y. Sta. Bul.* **218**:198. 1902.

Originated with J. H. Black, Son & Company, Hightstown, New Jersey; introduced in 1899. Imperfect. On the Station grounds, plants few, medium in vigor, unproductive; fruit above medium to large, oval to wedge, light red, medium firm, inferior in flavor; poor; midseason.

Leonard. 1. *N. Y. Sta. Bul.* **24**:335. 1890.

Introduced by a Mr. Leonard about 1887. Perfect. Plants vigorous, productive; berries large, conic, dark crimson, firm; good; early.

Leroy. 1. *Gard. & For.* **6**:335. 1893.

Originated with J. H. Haynes, Delphi, Indiana; introduced about 1891. Imperfect. Plants vigorous, productive; berries large, round-conic, ridged, dark crimson; flesh dark red, firm; good; early to midseason.

Lester Lovett. 1. *Am. Gard.* **22**:473. 1901.

Originated with Matthew Mullen, Lincroft, New Jersey; introduced in 1901. Perfect. Plants vigorous; berries large, round-conic, light crimson, firm, acid; good; late.

Leviathan. 1. *Gard. & For.* **6**:336. 1893.

Originated with H. G. Wolfgang, Salem, Ohio, as a seedling of Sharpless; introduced in 1892. Perfect. Berries large, flattened wedge-shape, light scarlet; flesh whitish, soft; fair; midseason.

Lexington. 1. *Va. Sta. Bul.* **91**:89. 1898.

Originated with W. H. Earhart, Lexington, Ohio; introduced about 1896. Perfect. Berries large, irregular, scarlet; midseason.

Liberty Bell. 1. *Am. Pom. Soc. Rpt.* 167. 1920.

A seedling of Gandy introduced by J. T. Garrison & Sons, Woodstown, New Jersey. Plants thrifty, very productive; fruit firm, resembling Gandy but larger.

Lida. 1. *Rural N. Y.* **45**:461. 1886. 2. *N. Y. Sta. Bul.* **24**:534. 1890.

Originated in 1880 by William Parry, Parry, New Jersey; introduced in 1886. Perfect. In the Station beds, plants vigorous, few, very productive; fruit-stems stiff, upright; fruit uniformly large, roundish, attractive dark red, very soft, rots quickly, inferior in flavor; poor; midseason.

Lillie Monroe. 1. *Mich. Sta. Bul.* **100**:8. 1893.

Perfect. Plants moderately vigorous and productive; berries large, conic, flattened, dull dark scarlet; flesh light red, soft; fair; early.

Lincoln. 1. *Va. Sta. Tech. Bul.* **11**:58. 1916.

Originated in Michigan; introduced about 1905. Berries medium in size, long-conic to wedge-shape, bright crimson, soft; midseason.

Linnet. 1. *Ohio Sta. Bul.* **154**:48. 1904.

Introduced about 1904 by M. Crawford Company, Cuyahoga Falls, Ohio. Perfect. Berries medium in size, long-conic, dark crimson; flesh dark red, firm; good; early.

Little Jap. 1. *Md. Sta. Bul.* **160**:203, 213. 1911.

Originated with A. T. Goldsborough, Washington, D. C.; introduced prior to 1911. Perfect. Plants large, vigorous; berries large, roundish to coxcomb, bright crimson, firm, mildly subacid; fair; early.

Little Monitor. 1. Downing *Fr. Trees Am.* 994. 1869.

Originated with W. A. Burgess, Glen Cove, New York; introduced about 1862. Berries small to medium, round-conic, obtuse, light scarlet; flesh whitish, soft, sweet; good.

Little Seedlings. 1. *Va. Sta. Tech. Bul.* **11**:58. 1916.

Seedlings numbering from 1 to 42 were raised by James Little, Granton, Ontario, about 1900. One of these is Woolverton.

Livingston. 1. *Md. Sta. Bul.* **160**:203, 213. 1911.

Originated by C. M. Middleton as a supposed cross between Warfield and Jessie; introduced in 1900. Plants large, vigorous; berries medium to below, irregular long-conic, necked, crimson, firm, mildly subacid; fair; midseason.

Lizzie Randolph. 1. *Horticulturist* **7**:352. 1852.

Originated with W. R. Prince, Flushing, New York; introduced in 1847. Imperfect. Plants productive; berries medium to large, roundish, long-conic; poor.

Lnge. 1. *Am. Pom. Soc. Rpt.* 293. 1921.

Originated by Albert F. Etter, Ettersburg, California. Perfect. Plants at this Station medium in number, vigor, and height, productive; fruit-stems short, thick, semi-erect; fruit above medium to small, wedge to conic, glossy medium red, green tipped, very juicy, firm, sprightly; good; late.

Logan. 1. *Am. Gard.* 10:342. 1889. 2. *N. Y. Sta. Bul.* 24:334. 1890.

Supposed to be a seedling of Crescent originated in 1886 by J. H. Haynes, Delphi, Indiana. Perfect. At this Station, plants vigorous, productive; fruit-stems short, weak, prostrate; fruit large, roundish, glossy red, well flavored, soft; good; midseason.

Long John. 1. *Rural N. Y.* 42:146. 1883. 2. *N. Y. Sta. Bul.* 24:335. 1890.

Originated with John Burdette, La Salle, New York; introduced in 1871. Perfect. As grown here, plants vigorous, productive; fruit-stems very short, prostrate; fruit small, long-conic, unusually dark red, firm, sour; fair; midseason.

Long John (of Wilde). 1. *Mich. Sta. Bul.* 118:5, 8. 1895.

Originated with Thomas Wilde, Herrington, Michigan; introduced about 1892. Perfect. Berries small, long-conic, bright crimson, moderately firm; good; early to midseason.

Longfellow. 1. *Va. Sta. Tech. Bul.* 11:58. 1916.

Propagated by R. M. Kellogg Company, Three Rivers, Michigan; introduced in 1909. Perfect. Berries large, long-conic, dark crimson, firm, mildly subacid; fair; midseason.

Longfellow (of Webb). 1. *W. N. Y. Hort. Soc. Rpt.* 119. 1880.

Originated in 1876 by A. D. Webb, Bowling Green, Kentucky. Perfect. Station plants weak, numerous, productive; fruit-stems short; fruit large, oblong-conic, glossy dark red, firm, sweet, with a pleasant flavor; fair; midseason. Of no special value.

Longfield. 1. *Mich. Sta. Bul.* 130:48. 1896.

Originated with James Stayman, Leavenworth, Kansas, as a seedling of Warfield; introduced about 1893. Imperfect. Berries medium to large, long-conic, dark crimson, firm; good; early to midseason.

Longworth. 1. *Va. Sta. Tech. Bul.* 11:58, fig. 11. 1916.

Schneike's Pistillate. 2. *Cultivator* 3d Ser. 1:280. 1853.

Longworth's Prolific. 3. *Horticulturist* 8:388. 1853.

Originated in 1848 by a Mr. Schneike, a tenant of Nicholas Longworth, Cincinnati, Ohio, as one of thousands of seedlings, but never widely grown. Perfect. Plants large; berries large, roundish oval, crimson, firm, briskly subacid; good; early.

Lord Salisbury. 1. Townsend *Cat.* 1925.

Originated in 1920 by James H. Parsons, Salisbury, Maryland. Imperfect. Plants strong, healthy, productive; berries round, uniform in size and shape, firm, bright red; good; early to midseason.

Louella. 1. *Mich. Hort. Soc. Rpt.* 167. 1882.

Luella. 2. *Ill. Hort. Soc. Rpt.* 359. 1886.

Introduced about 1880. Perfect. Plants vigorous, productive; berries large, irregular round-conic, often necked, dark crimson; flesh dark red, acid; good; midseason.

Louis Ella. 1. *Am. Pom. Soc. Rpt.* 167. 1920.

Originated in 1916 by Louis Graton, Whiteman, Massachusetts, as a seedling of Brandywine. Perfect. On the Station grounds, plants variable in number, height, and yield, medium in vigor, healthy; flowers midseason, very large; fruit-stems thick, semi-erect; calyx very large, leafy; petals very large; seeds raised; fruit large to medium, blunt-conic to round-conic, dull medium to dark red, juicy, sweet, highly flavored, with a hollow center; very good. Worthy of test on account of high quality.

Louis Gauthier. 1. *Gard. Chron.* 3d Ser. **19**:199. 1896. 2. *Am. Gard.* **18**:536. 1897. 3. *Va. Sta. Tech. Bul.* **11**:59. 1916.

Originated by Louis Gauthier, Calvados, France; introduced to America in 1897; of interest solely as one of the parents of Americus, one of the best of the autumn-fruiting sorts. Perfect. Plants lacking in vigor, moderately productive; berries medium to large, round-conic to wedge, very light scarlet to whitish; flesh whitish, firm, mildly subacid; good; midseason to late.

Louis Hubach. 1. *Ohio Sta. Bul.* **154**:48. 1904.

Originated by Louis Hubach, Judsonia, Arkansas, as a cross between Warfield and Thompson; introduced in 1902. Imperfect. Plants vigorous, productive; berries medium in size, round-conic, dark crimson, firm, acid; fair; moderately early.

Louise. 1. *Rural N. Y.* **47**:460. 1888. 2. *N. Y. Sta. Bul.* **36**:632. 1891. *Burpee's Louise.* 3. *Ia. Hort. Soc. Rpt.* 216. 1889.

Originated by Nicholas Hallock, Creedmore, New York; introduced by W. Atlee Burpee, Philadelphia, Pennsylvania, in 1886. Imperfect. In the Station beds, plants very vigorous, very productive, few; fruit-stems long, stiff, erect; fruit large, conic, glossy red, variable in firmness, well flavored; good to very good; midseason. Rots quickly in wet weather.

Lovett. 1. *U. S. D. A. Pom. Rpt.* 393. 1891. 2. *N. Y. Sta. Bul.* **109**:247. 1896. *Lovett's Early.* 3. *Rural N. Y.* **50**:527. 1891.

Originated in 1885 by J. H. Morris, Fairview, Kentucky; supposed to be a cross between Crescent and Wilson. Perfect. Plants at this Station, vigorous, bearing a moderate crop of very fine appearing berries of fairly good quality but soft; not extra early here.

Lower. 1. *Mich. St. Bd. Agr. Rpt.* 132. 1885.

Originated about 1878 with Byron Lower, Mt. Pleasant, Michigan. Perfect. Berries large, round-conic, dark crimson, moderately firm; good; midseason.

Loyal. 1. *Am. Pom. Soc. Rpt.* 167. 1920.

A seedling of Superb, originated by William Pfaender, New Ulm, Minnesota; introduced by the Pioneer Nursery Company of that place. Autumn-bearing; berries large; good.

Lucas. 1. *Ohio Sta. Bul.* **154**:48. 1904.

Originated in 1898 with W. S. Todd, Greenwood, Delaware, as a chance seedling. Perfect. Plants large, vigorous, productive; berries medium in size, round-conic to wedge, dark crimson, moderately firm, acid; fair; midseason.

Luckhurst. 1. *Mich. Hort. Soc. Rpt.* 98. 1877.

Originated in New York; introduced about 1874. Perfect. Plants medium in vigor and productiveness; berries large, round-conic, dark crimson, firm; good; midseason.

Lucky Boy. 1. *Am. Pom. Soc. Rpt.* 293. 1921.

Originated by Samuel Cooper, Delevan, New York. Plants medium in size, deep rooted; berries very large, round, firm, sweet; good.

Lucky Cross. 1. *Am. Pom. Soc. Rpt.* 293. 1921.

A seedling of Productive which originated with W. M. Freeman, New Meadows, Idaho. Autumn-bearer; berries large, brilliant red, with white centers, very firm; good.

Lucky Strike. 1. *Am. Pom. Soc. Rpt.* 167. 1920.

Found growing in 1915 in a bed of Progressive everbearing plants by E. W. Townsend, Salisbury, Maryland. Perfect. At this Station, plants variable in number, medium in vigor, dwarfish, productive, with slight leaf-spot; autumn-bearing; leaves small, thin, dark green; flowers small; fruit small, conic, dull medium red; seeds raised; flesh juicy, firm, sprightly; poor; very late.

Lucretta. 1. *Can. Exp. Farms Rpt.* 298. 1913.

Originated in 1906 at the Central Experimental Farm, Ottawa, Canada, as a seedling of Bubach. Perfect. Berries large, roundish to wedge, dark scarlet, firm, subacid; fair; early.

Lupton. 1. *N. J. Hort. Soc. Rpt.* 40. 1916. 2. Hedrick *Cyc. Hardy Fr.* 341. 1922.

Originated in 1905 as a cross between Joe and Gandy by M. D. Lupton, Newport, New Jersey. It is about the handsomest of commercial strawberries but one of the poorest in quality, the Ben Davis in the strawberry family. Perfect. Plants tall, numerous, vigorous, healthy, productive; leaves large, somewhat roundish, dark green; fruit-stems long, thick, semi-erect; pedicels long, often very thick; fruit large to very large, often double, irregular, with a furrowed surface, usually a broad wedge but variable, glossy light red, seldom turning dark after picking; flesh well colored to the center, rather dry, very firm, mildly subacid; poor; late midseason.

Luscious Scarlet. 1. *Horticulturist* **8**:500. 1853.

Originated by W. R. Prince, Flushing, New York; introduced about 1853. Imperfect. Plants productive; berries large, roundish, dark scarlet; good.

Luther. 1. *N. Y. Sta. Bul.* **76**:436. 1894.

August Luther. 2. *Am. Gard.* **21**:629, 630. 1900.

Originated in 1875 by August Luther, Sedalia, Missouri. Perfect. Station plants vigorous, very numerous, moderately productive; fruit-stems good; fruit medium or above in size, medium red, moderately firm; fair to good; early.

Luxuriant. 1. *Ann. Hort.* 97. 1871.

Originated by E. W. Durand, Irvington, New Jersey; introduced about 1868. Berries large, roundish, light scarlet, sweet; poor.

Luxury. 1. *Ohio Sta. Bul.* **154**:48. 1904.

Originated by E. H. Riehl, Alton, Illinois, as a cross between Brandywine and Williams. Perfect. Berries medium in size, irregularly wedge-conic, dark crimson; flesh dark red, firm, subacid; very good to best; midseason.

Lyons. 1. *Ohio Sta. Bul.* **154**:48. 1904.

Originated in 1896 with L. W. Hardy, Grand Rapids, Michigan, as a seedling of Bubach. Imperfect. Plants slender but vigorous, healthy, productive; berries medium in size, long-conic, dark crimson, firm, subacid; good; medium early.

McAlpin. 1. *Peninsula Hort. Soc. Rpt.* 84. 1916. 2. *N. Y. Sta. Bul.* **447**:72. 1918. *Hausmann.* 3. *Am. Pom. Soc. Rpt.* 166. 1920.

A cross between Glen Mary and Bubach made by Hausmann Brothers, Hilton, New Jersey, in 1909. Perfect. As grown here, plants numerous, vigorous, injured by leaf-spot, productive; fruit-stems long, slender, erect; fruit large, furrowed, blunt-wedge to blunt-conic, necked, dull light red, green tipped, very juicy, rather soft, subacid, with whitish center; fair; late.

McAvoy Extra Red. 1. *Horticulturist* **8**:388. 1853. 2. Downing *Fr. Trees Am.* 676. 1857.

Originated in 1848 with D. McAvoy, Cincinnati, Ohio, a tenant of Nicholas Longworth, as a seedling of Iowa. Plants vigorous, very productive; fruit large, irregularly oblate, usually necked, dark scarlet; flesh light red, soft, juicy, acid; fair; late.

McAvoy Superior. 1. *Mag. Hort.* **17**:361. 1851. 2. Fuller *Sm. Fr. Cult.* 96. 1867. *Buffalo.* 3. *Mag. Hort.* **30**:142. 1864.

Originated in 1848 by D. McAvoy, Cincinnati, Ohio, from mixed seed of Hovey and Keens Seedling; introduced in 1851, in which year it received the prize of one hundred dollars offered by the Cincinnati Horticultural Society for the " best new American strawberry." It was widely grown until about 1865. Buffalo, introduced by Abner Bryant, Buffalo, New York, in 1864, proved identical with McAvoy Superior. The variety was placed in the list of fruits promising well by the American Pomological Society in 1856, in the society's catalog in 1862, from which it was removed in 1871. Plants medium in number, vigorous, very productive; fruit large, irregular, roundish oblate, necked, variable in color from light to dark crimson; flesh dark red, soft, sweet; very good.

McKinley. 1. *Rural N. Y.* **55**:515. 1896. 2. *N. Y. Sta. Bul.* **147**:186. 1898.

Originated with W. J. Moyle, Union Grove, Wisconsin; introduced in 1896 by Ellwanger & Barry, Rochester, New York. Plants medium in number, vigor, and productivity; fruit large, irregular round-conic to long-conic, dark crimson; flesh medium red, medium firm, acid; fair; midseason.

McNeil. 1. *Miss. Sta. Bul.* **26**:10. 1893.

Originated in Crystal Springs, Mississippi, as a seedling of Hoffman; introduced about 1893. Imperfect. Plants medium in number, healthy; fruit large, roundish to oblong, crimson; flesh medium red, firm; good; late.

Maggie. 1. *Am. Pom. Soc. Rpt.* 93. 1883. 2. *Can. Exp. Farm Bul.* **62**:34. 1909.

Originated with Charles Arnold, Paris, Ontario, in 1878, as a cross between Wilson and Doctor Nicaise; introduced in 1881. Perfect. Plants few, vigorous, productive; fruit medium in size, round-conic to wedge-conic, light scarlet; flesh medium red, medium firm, juicy, subacid; good; early.

Magic Gem. 1. *N. Y. Sta. Bul.* **447**:73. 1918.

Originated by Edward Vance, Twin Falls, Idaho, in 1912. Perfect. On the Station grounds, plants medium in number and vigor, healthy, productive; fruit-stems medium in length, thick, semi-erect; calyx large, leafy, raised; fruit very large, drops in size, broad-conic, with a few coxcombs, necked, glossy medium red, juicy, very firm, the larger berries with a hollow center, sprightly, well flavored, with red flesh; very good.

Magnate. 1. *N. Y. Sta. Bul.* **64**:9. 1894.

Originated by James Stayman, Leavenworth, Kansas, as a seedling of Warfield. Imperfect. In the Station beds, plants vigorous, few, unproductive, healthy; fruit medium to large, long-conic, dark red, soft; good; midseason.

Magnus. 1. *N. Y. Sta. Bul.* **298**:53. 1908. 2. *N. Y. Sta. Bul.* **309**:532. 1908.

Originated at this Station in 1899 as a cross between Hunn and Marshall. Owing to its variable color it has not proved popular for market, although its high quality makes it desirable in the home garden. Imperfect. At this Station, plants numerous, vigorous, productive, usually healthy; leaves large, dark green; fruit-stems medium in length, thick, prostrate; calyx large, leafy, sunken; seeds raised; fruit above medium to very large, retains size well, round-conic to long-conic, very dark red, colors unevenly, firm, juicy, with whitish center, mildly acid; good to very good; midseason.

Magoon. 1. *Rural N. Y.* **56**:471. 1897. 2. *Ore. Bien. Crop Pest & Hort. Rpt.* 76. 1915.

A chance seedling which originated in the garden of W. J. Magoon, Portland, Oregon, who introduced it in 1894. Magoon is the leading variety for home use and local markets in western Oregon and Washington, its popularity being due to its productivity. The fruit is too soft for shipping long distances or for canning. The American Pomological Society added Magoon to its catalog in 1899, where it remained in the last catalog in 1909. Perfect. Plants numerous, vigorous and productive; fruit medium to large, irregular round-conic, attractive dark crimson; flesh medium to dark red, rather soft, mildly subacid; good; midseason.

Maida. 1. *Wis. Sta. Bul.* **72**:12. 1899.

Sent out in 1896 by the United States Department of Agriculture who secured it from W. M. Carlins of Virginia. Perfect. Plants few, medium in vigor, unproductive; fruit-stems very long; fruit medium to large, oblong-conic, bright scarlet, with green tips; flesh light red, soft, subacid; good; late.

Malinda. 1. *Ohio Sta. Bul.* **178**:51. 1906.

Linda. 2. *Am. Pom. Soc. Cat.* 51. 1909.

Originated with James Waters, Watsonville, California; introduced about 1894. In the Watsonville and Florin districts of California it is the leading sort, usually being sold as " Longworth." The variety was placed in the last catalog of the American Pomological

Society in 1909 as Linda. Perfect. Plants medium in number and vigor, moderately productive; fruit of medium size, round-conic, dark crimson; flesh red, moderately firm, mildly subacid; good; midseason.

Mammoth. 1. *Mich. Sta. Bul.* **55**:14. 1889. 2. *N. Y. Sta. Bul.* **24**:335. 1890.

Originated with William Davis, Mount Ephraim, New Jersey; introduced in 1885 by William Parry, Parry, New Jersey. Perfect. Station plants very vigorous and numerous, severely attacked by leaf-spot, very productive; fruit-stems erect, holding the fruit above the foliage; fruit oblate-conic to round-conic, glossy red, large, soft, well flavored; good; late.

Mammoth Beauty. 1. *Ohio Sta. Bul.* **236**:226. 1912.

Originated in Massachusetts; introduced about 1908. This sort is very similar to Haverland. Imperfect. Plants few, vigorous; fruit medium to very large, irregular long-conic, often coxcombed and necked, bright scarlet, with occasional white tips; flesh medium red, medium firm, mildly subacid; good; midseason.

Mammoth Bush. 1. *W. N. Y. Hort. Soc. Rpt.* 120. 1880.

Originated by A. J. Caywood & Son, Marlboro, New York; introduced about 1879. Perfect. Plants few, vigorous, productive; fruit very large, round-conic, often coxcombed, bright scarlet; flesh moderately firm, juicy, subacid; inferior in quality.

Manchester. 1. *Gard. Mon.* **23**:240. 1881. 2. *N. Y. Sta. Bul.* **24**:335. 1890.

Originated about 1871 with Jesse Battey, Manchester, New Jersey, as a chance seedling. Grown extensively from 1885 to 1890. The American Pomological Society added Manchester to its catalog in 1883, where it remained in the last catalog in 1909. Imperfect. As grown here, plants vigorous, very numerous, productive, severely injured by leaf-spot; fruit-stems short, much branched; fruit round-conic to oblong-conic, medium to small, light red, firm, subacid; good; late.

Manhattan. 1. *N. Y. Sta. Bul.* **336**:59. 1911.

A chance seedling discovered on his farm in 1907 by J. E. Kuhns, Cliffwood, New Jersey. Perfect. On the Station grounds, plants very few, small, healthy, medium productive; fruit above medium to below in size, conic or wedge, dull light red; seeds much raised; flesh juicy, firm, tart, inferior in flavor; poor; late.

Manokin. 1. *N. Y. Sta. Bul.* **218**:198. 1902.

Originated in 1895 by O. A. Johnson, Manokin, Maryland, as a cross between Crescent and Sharpless. Imperfect. In the Station beds, plants vigorous, very numerous, healthy, very productive; fruit-stems long, slender, prostrate; fruit medium to large, drops quickly in size, wedge, light red, glossy, soft, juicy; fair; midseason.

Manwell. 1. *Am. Gard.* **17**:515, 647, fig. 224. 1896.

A supposed cross between Crescent and Sharpless which originated with A. D. Manwell, Vinton, Iowa; introduced about 1895. Perfect. Plants few, moderately vigorous, productive; fruit large, irregular, round-conic, crimson; flesh medium red, firm, acid; fair; midseason.

Maple Bank. 1. *Can. Hort.* **18**:241. 1895. 2. *N. Y. Sta. Bul.* **109**:235. 1896.

A supposed cross between Crescent and Wilson which originated with E. B. Stevenson, Lowville, Ontario; introduced about 1895. Imperfect. Plants at this Station, vigorous, numerous, moderately productive; fruit medium to very large, round-wedge, glossy dark red, firm; fair; midseason to late.

Marconi. 1. *Ohio Sta. Bul.* **166**:76. 1905.

Originated in 1900 by K. Smith, Bridgman, Michigan, as a cross between Warfield and Enhance. Imperfect. Plants vigorous; fruit medium in size, round-conic, dark red; flesh red, acid; good; midseason.

Margaret. 1. *Gard. Mon.* **15**:218. 1873.

Raised by Matthew Crawford, Cuyahoga Falls, Ohio, who introduced it in 1873. Imperfect. Fruit large, round-conic, very dark crimson: flesh dark red, subacid; good; midseason.

Margaret (of Beavers). 1. *N. Y. Sta. Bul.* **109**:235. 1896. 2. *Meehans' Mon.* **7**:115. 1897.

Originated in 1891 by J. F. Beaver, Dayton, Ohio, as a seedling of Crawford. Perfect. Plants numerous, medium in number and vigor, unproductive; fruit of medium size, conic, dark red; flesh medium red, firm, mildly subacid; good; midseason.

Marguerite. 1. *Am. Gard.* **19**:111, 196. 1898.

A chance seedling supposed to be a cross between Jewell and Jessie which originated with J. C. Grossman, Wolcottville, Indiana, in 1893. This sort has been confused with Margaret, from the similarity in names. A French sort of the same name originating in 1858 has been on trial in this country. Imperfect. Plants numerous, medium in vigor and productivity; fruit medium to large, irregular round-conic, bright scarlet; flesh whitish, soft; good; midseason.

Mariana. 1. *Can. Exp. Farms Rpt.* 298. 1913.

A seedling of Bubach which originated in 1906 at the Central Experimental Farm, Ottawa, Canada. Perfect. Plants medium in number; fruit large, roundish to wedge-shape, dark scarlet; flesh medium red, medium firm, subacid; good; late midseason.

Marie. 1. *Rural N. Y.* **60**:108. 1901. 2. *Can. Exp. Farm Bul.* **62**:34. 1909.

Originated in 1892 by W. N. Scarff, New Carlisle, Ohio, as a cross between Crescent and Cumberland. Imperfect. Plants few, vigorous, productive; foliage subject to rust; fruit large, roundish, pale glossy red; flesh pale red, rather soft, juicy; good; late midseason.

Mark. 1. *Mich. Sta. Bul.* **81**:8. 1892.

Originated with Mark T. Thompson, Rio Vista, Virginia, as a seedling of Sharpless; introduced about 1889. Perfect. Plants medium in number, vigor, and productivity; fruit medium in size, round-conic, light crimson; flesh light red, medium firm; fair; midseason.

Mark Hanna. 1. *Ohio Sta. Bul.* **146**:35. 1903. 2. *N. Y. Sta. Bul.* **276**:72. 1906.

A seedling of Bubach originated by Mark T. Thompson, Rio Vista, Virginia; introduced about 1906. Imperfect. At this Station, plants numerous, healthy, very productive,

vigorous; fruit-stems long, thick; fruit large to very large, retains size well, irregularly shaped and furrowed, glossy light red, medium firm, juicy, pleasantly tart; fair to good; medium early.

Marsden Perry. 1. *Ohio Sta. Bul.* **186**:7. 1907.

Originated by William Perry, Cool Spring, Delaware; introduced in 1904. Perfect. Plants few, unproductive; fruit of medium size, conic, crimson; flesh medium red, subacid; fair; midseason.

Marshall. 1. *N. Y. Sta. Bul.* **91**:192. 1895. 2. *Ibid.* **309**:533. 1908.
Henry. 3. *Rural N. Y.* **56**:470. 1897.

Were it not for its very exacting soil and climatic requirements, Marshall would be considered the standard of excellence among strawberries in both fruit and plant in northern regions. The plants require a heavy, rich soil and intensive culture to force the foliage sufficiently to withstand the leaf-spot. Under good conditions, however, very large crops of exceedingly handsome and splendid-flavored berries, are produced. Under unfavorable conditions, which occur all too often, the berries are small, seedy, irregular and unattractive. This variety originated in 1890 as a chance seedling, with Marshall F. Ewell, Marshfield Hills, Massachusetts, who introduced it in 1893.

Perfect. Plants medium in number, tall, large, usually vigorous, susceptible to leaf-spot, variable in yield; leaves large, light to dark green, roundish, thick, rugose, glossy. Flowers midseason, large; petals 5–6, small; stamens numerous; receptacle intermediate in size. Fruit midseason; fruit-stems thick, prostrate; pedicels long, thick; calyx sometimes discolored, depressed; sepals medium in length and width; berries large to very large, irregularly round-conic to wedge, the surface often irregularly furrowed and misshapen; apex obtuse; color glossy dark, deep red; seeds raised to slightly sunken; flesh dark red to the center, juicy, variable in firmness, pleasantly sprightly, aromatic; quality very good to best.

Marshall Improved. 1. *N. Y. Sta. Bul.* **447**:73. 1918.

The origin of this variety is obscure. E. W. Townsend & Sons, Salisbury, Maryland, introduced the sort about 1913, having purchased the original plant three years earlier from a nursery canvasser. It is inferior to Marshall at this Station. Perfect. Plants healthy, medium in number, yield, and vigor; fruit-stems short, thick, erect; fruit large to medium, irregularly furrowed, round-conic, dull light red, medium in juiciness and firmness, subacid, whitish at the center, fair; early.

Marston. 1. *N. Y. Sta. Bul.* **91**:192. 1895.

Introduced about 1894 by C. S. Pratt, Reading, Massachusetts. Imperfect. As grown here, plants vigorous, numerous, very productive; fruit-stems good; fruit medium or below in size, light red, irregular round-conic, moderately firm, acid; fair; early.

Martha. 1. *Rural N. Y.* **47**:710. 1888. 2. *N. Y. Sta. Bul.* **44**:143. 1892.

Raised by William Lyons, Minneapolis, Minnesota, from mixed seed of Pride of Cumberland, Wilson, and Downer Prolific; introduced in 1891 in which year it was placed in the catalog of the American Pomological Society, from which it was removed in 1897. Imperfect. On the Station grounds, plants stocky, with very dark green foliage; fruit dark red, of moderate size and of fine quality; midseason.

MARSHALL

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Marvel. 1. *N. Y. Sta. Bul.* **24**:338. 1890.

Originated in Ohio; introduced about 1890. Perfect. Plants numerous, vigorous, productive; fruit large, round-conic, dark crimson; flesh soft, subacid; fair; midseason.

Marvel (of Kellogg). 1. Kellogg *Cat.* 23. 1922.

Originated by Percy Schuckhardt, North Lake, Wisconsin, and is supposed to be a cross between Dunlap and Warfield; introduced by the R. M. Kellogg Company, Three Rivers, Michigan, in 1922. The fruit is of the type of Dunlap and worthy of trial. Perfect to semi-perfect. In the Station beds, plants very numerous, vigorous, tall, very productive, healthy; leaves large, dark green; flowers midseason to late, small; fruit-stems short, thick, semi-erect; calyx and seeds raised; fruit large to medium, soon becomes smaller, conic, necked, unusually dark red, glossy, somewhat seedy at the apex, with very dark red flesh, juicy, very firm, subacid to sprightly; good; late midseason.

Marvin. 1. *W. N. Y. Hort. Soc. Rpt.* 119. 1880.

Originated by Harry Marvin, Ovid, Michigan, in 1874, as a supposed cross between Wilson and Jucunda. Perfect. Plants medium in number, productive; fruit large, round-conic, bright crimson; flesh firm; very good; very late.

Mary. 1. *Rural N. Y.* **48**:523. 1889. 2. *N. Y. Sta. Bul.* **109**:236. 1896.

Originated in 1886 by H. H. Alley, Hilton, New Jersey, as a cross between Champion and Great American. Imperfect. Plants at this Station, very few, vigorous, healthy; fruit-stems medium; fruit large to very large, irregular in shape, with many coxcombs, dark red, firm, acid, with dark red flesh; fair; midseason to late.

Mary Stewart. 1. *Am. Pom. Soc. Cat.* 38. 1873.

Originated in Louisiana; introduced in 1873 by Samuel Miller, Bluffton, Missouri. Added to the catalog of the American Pomological Society in 1873 from which it was removed in 1879. Imperfect. Fruit soft; good; late.

Maryland. 1. *Md. Sta. Bul.* **160**:214. 1911.

Found in Anne Arundel County, Maryland, in 1902. Perfect. Plants vigorous; fruits large, irregular round-conic, bright scarlet; flesh whitish, medium firm, juicy, mildly subacid; early midseason.

Maryland Prize. 1. *N. Y. Sta. Bul.* **401**:185. 1915.

Said to have originated with a Mr. Bell, Tawson, Maryland, in 1908. Imperfect. At this Station, plants numerous, vigorous, healthy, very productive; fruit-stems long, thick, prostrate, much branched; fruit large, with a furrowed surface, conic to wedge, dull medium red, very juicy, subacid, highly flavored; good to very good; midseason.

Marylandica. 1. *Mag. Hort.* **18**:407. 1852. 2. *Ibid.* **23**:123. 1857.

Originated in 1850 by Thomas Edmondson, Baltimore, Maryland; introduced in 1857. Perfect. Plants numerous, unproductive; fruit large, roundish, dark crimson; flesh whitish, firm; good.

Mascot. 1. *N. Y. Sta. Bul.* **401**:60. 1915. 2. *U. S. D. A. Farmers' Bul.* **1043**:33. 1919.

Introduced by T. M. Hanback, Warrenton, Virginia, in 1908. Mascot described in Bulletin 336 of this Station was not true to name. It is being grown extensively in Mary-

land, Delaware, and New Jersey, where it ripens later than Gandy, is of better quality and lacks the white tips which detract from the appearance of that sort. Perfect. Station plants numerous, productive, healthy; flowers unusually large and with crinkly petals, late; fruit-stems long, thick, semi-erect; calyx large, raised; seeds raised; fruit large, blunt-wedge to roundish, dull medium red, with apex often green tipped and seedy, juicy, firm, sweet, highly flavored, with well-colored flesh; very good; late.

Mastodon. 1. Budd-Hansen *Am. Hort. Man.* **2**:421. 1903. 2. Ont. Dept. Agr. *Fr. Ont.* 309. 1914.

Introduced by James Lippincott, Jr., Mount Holly, New Jersey, in 1895. Very similar to Bubach. Imperfect. Plants numerous, vigorous, productive; fruit very large, round-conic, bright crimson; flesh pink, medium firm; good; midseason.

Matilda. 1. *Am. Hort. Ann.* 107. 1870.

A supposed seedling of Triomphe which originated with A. J. Tillson, Highland, New York; introduced in 1870. Perfect. Plants numerous, vigorous; fruit large, roundish conic, light scarlet; flesh light red, medium firm, very juicy, sprightly; very good; early midseason.

Matthew Crawford. 1. *N. Y. Sta. Bul.* **336**:60. 1911.

Originated by J. R. Peck, Breckenridge, Missouri. Perfect. As grown here, plants numerous, healthy, extremely dwarfish, medium productive; fruit large, drops quickly in size, conic, glossy light red, juicy, medium firm, subacid, whitish at the center; fair to good; very late.

Matthews. 1. *N. J. Hort. Soc. Rpt.* 19. 1917.

Originated in 1910 as a chance seedling with F. E. Matthews, Pocomoke City, Maryland. Perfect. On the Station grounds, plants numerous, medium in vigor and height, productive, healthy; fruit-stems medium in length and thickness, prostrate; fruit medium to small, wedge to irregular conic, furrowed, glossy medium red, very juicy, firm, with a hard center, tart; fair; very early.

Maud Muller. 1. *N. Y. Sta. Bul.* **401**:185. 1915.

A seedling of Excelsior; introduced in 1912 by E. W. Townsend & Sons, Salisbury, Maryland. Perfect. In the Station beds, plants very numerous and vigorous, productive, healthy; fruit-stems short, slender, prostrate; fruit above medium to small, irregular conic to wedge, furrowed, glossy medium to dark red, very juicy, firm, subacid, red to the center; fair; early.

Maximus. 1. *Rural N. Y.* **58**:530. 1899. 2. *N. Y. Sta. Bul.* **218**:198. 1902.

Armstrong. 3. *Mich. Sta. Bul.* **176**:4. 1899.

Big Berry. 4. *Am. Gard.* **21**:533. 1900.

Corsican. 5. *Rural N. Y.* **64**:544, 568. 1905.

German Seedling. 6. *Ibid.* **68**:626. 1909.

This variety is supposed to have originated in Germany and was grown for several years near Rochester, New York, before being introduced as Maximus in 1897. Later a Mr. Armstrong, Charlotte, New York, disseminated it under his own name. It was subse-

quently distributed as Big Berry and Corsican. The berries are large, handsome and ship well. Perfect. Plants tall, numerous, vigorous, usually healthy, productive; flowers often very large; fruit-stems long, rather slender; fruit medium to very large, holding up well in size, irregularly round-conic to wedge, the surface often furrowed, light to dark red, not very glossy; flesh light red, medium in firmness and juiciness, mildly subacid; good; midseason.

Maxwell. 1. *Mich. Sta. Bul.* **130**:50. 1896.

Introduced in 1893. Perfect. Plants medium in number, vigorous; fruit small, round-conic, dark crimson; flesh dark red, medium firm; good.

May King. 1. *Rural N. Y.* **45**:333. 1895. 2. *N. Y. Sta. Bul.* **24**:335. 1890.

Originated with Thomas G. Zane, Chews, New Jersey, as a seedling of Crescent; introduced about 1885. Perfect. Plants at this Station, vigorous, numerous, healthy, productive; fruit-stems stiff, erect; fruit medium to large, almost round, light red, firm, well flavored, subacid; very good to best; early.

Mayflower. 1. *Mich. Sta. Bul.* **163**:69. 1898.

Originated with Charles Waldron, Manchester, Ohio; introduced about 1884. Perfect. Plants numerous, vigorous; fruit of medium size, long-conic, bright scarlet; flesh pale red, medium firm, juicy; fair; early.

Maytrott. 1. *Rural N. Y.* **55**:515. 1896.

Introduced about 1894. Perfect. Plants numerous, vigorous, productive; fruit medium in size, round-conic, crimson; flesh bright scarlet, medium firm, acid; fair; midseason.

Maywood.

A cross between Sample and Glen Mary raised by T. C. Kevitt, Athenia, New Jersey, in 1912. As grown here Maywood is worthy of trial because of the productivity of the plants and the attractive, high-quality fruit. Perfect. Plants above medium in number, vigorous, tall, very productive, healthy; leaves large; flowers midseason, medium to large; fruit-stems long, thick, erect; pedicels long, slender; calyx large, raised, often clasping; fruit above medium in size, soon becoming smaller, blunt-wedge, glossy dark red, juicy, very firm, sweet, red to the center; very good; early midseason.

Mead. 1. *N. Y. Sta. Bul.* **276**:73. 1906.

Originated with O. E. Mead, Lunenburg, Massachusetts, about 1894. Perfect. Station plants medium to below in number, vigorous, healthy, very productive; fruit-stems variable in length and thickness, prostrate; calyx leafy; fruit very large to medium, round-conic, variable in shape, glossy light and dark red, mildly acid, firm, well flavored; very good; midseason to late.

Mead (of New Jersey). 1. *Gard. Mon.* **6**:309. 1864. 2. Fuller *Sm. Fr. Cult.* 96. 1867.

Originated about 1857 by Peter B. Mead, Tenafly, New Jersey, as "a cross between the pine and scarlet." Imperfect. Plants vigorous, moderately productive; fruit of medium size, long-conic, necked, light scarlet; flesh pink, very firm, acid; fair; midseason.

Meek.

Meek Early. **1.** *N. Y. Sta. Bul.* **64**:9. 1894.

Originated with James Meek, Anne Arundel County, Maryland; introduced about 1891. Added to the catalog of the American Pomological Society in 1899, from which it was removed in 1909. Perfect. Plants few, vigorous, unproductive; fruit small, round-conic, very dark crimson; flesh dark red, firm, subacid; good; very early.

Mele. **1.** *Rural N. Y.* **55**:515. 1896.

A seedling of Crescent which originated with A. H. Griesa, Lawrence, Kansas, who introduced it in 1894. Imperfect. Plants medium in number, vigorous, very productive; fruit medium to large, round-conic, scarlet; flesh whitish, soft, acid; good; early midseason.

Mellie Hubach. **1.** *Ohio Sta. Bul.* **166**:77. 1905.

Originated by Louis Hubach, Judsonia, Arkansas, as a cross between Warfield and Thompson; introduced in 1903. Imperfect. Plants numerous, vigorous, productive; fruit of medium size, long-conic, slightly necked, regular, light crimson; flesh red, firm; fair; early midseason.

Meridian. **1.** *Mich. Sta. Bul.* **142**:153. 1897.

Originated with James Stayman, Leavenworth, Kansas; introduced about 1893. Imperfect. Plants numerous, vigorous, productive; fruit large, round-conic, dull dark crimson; flesh dark red, medium firm, lacking juice; fair; late.

Metcalf.

Metcalf's Early. **1.** Downing *Fr. Trees Am.* 996. 1869.

Originated at Niles, Michigan; introduced about 1866. Plants numerous, vigorous, productive; fruit small, roundish to oval, light scarlet; flesh soft, mildly subacid; good; early.

Meteor. **1.** *Md. Sta. Bul.* **160**:214. 1911.

Originated with Charles Lunt, of Massachusetts; introduced about 1907. Imperfect. Plants numerous, vigorous, productive; fruit medium to large, round-conic; color variable, scarlet to crimson, glossy; flesh light red, medium firm, acid; good; late.

Methven Scarlet. **1.** *Trans. Lond. Hort. Soc.* **6**:172. 1826. **2.** Downing *Fr. Trees Am.* 527. 1845.

An old English sort grown extensively in this country from 1825 to 1835. Raised in 1816 by Thomas Bishop, Methven Castle, Perthshire, England; introduced into this country about 1825. Plants numerous; fruit large, roundish to coxcomb, dull scarlet; flesh light red, soft; poor; midseason.

Mexican Everbearing. **1.** *Gard. Mon.* **11**:240, 301. 1869. **2.** *Am. Hort. Ann.* 107. 1870. **3.** *Va. Sta. Tech. Bul.* **11**:65. 1916.

Introduced about 1867 with the statement that it had been discovered by a Mr. Mack, near Jâlapa, Mexico. Henry Gilman, Detroit, Michigan, took it to Buffalo, New York, where the Society of Natural Sciences of that place decided it was a new species and named it *Fragaria Gilmani.* It was highly advertised and sold at $3.00 per dozen as an " everbearer " but it proved not to differ materially from the old Monthly Alpine and was worthless in most places.

Miami. **1.** *Col. O. Hort. Soc. Rpt.* 219. 1887. **2.** *N. Y. Sta. Bul.* **24**:335. 1890.

Originated in 1880 with J. D. Kruschke, Piqua, Ohio, as a seeding of Big Bob. Imperfect. On the Station grounds, plants medium in vigor, very numerous, productive; fruit medium to large, oblong-conic, glossy dark red, soft, well flavored; very good; late.

Michel. **1.** *Am. Gard.* **11**:562. 1890.

Michel's Early. **2.** *N. Y. Sta. Bul.* **24**:338. 1890. **3.** *Rural N. Y.* **50**:527. 1891.

Ella. **4.** *Kan. Sta. Bul.* **26**:130. 1891.

Osceola. **5.** *Del. Sta. Bul.* **18**:9. 1892.

Sunrise. **6.** *N. Y. Sta. Bul.* **147**:189. 1898.

Young's Early Sunrise. **7.** *Ohio Sta. Bul.* **146**:38. 1903.

Never of much account in the North, Michel was for many years the standard shipping sort for the South. It is still grown in several southern states as an early market variety, but is being discarded. The plants develop far too many runners, so that a patch of Michel becomes a wilderness. The fruits are small, poor in color and not of high quality. Extreme earliness and ability to cover a large area, sometimes an asset, are its chief characteristics. Excelsior which ripens at the same time is under most conditions a better variety. This sort originated in 1886 with George Michel, Judsonia, Arkansas; introduced in 1889; added to the American Pomological Society's list of recommended fruits in 1897. The variety is a chance seedling with Crescent as a probable parent.

Perfect. Plants very numerous, vigorous but slender, tall, healthy, variable in yield; leaves small, light green, rugose. Flowers early, intermediate in size; petals 6–8. large; stamens numerous; receptacle of medium size. Fruit very early; fruit-stems short, slender, prostrate; pedicels long, slender; calyx large, adherent, slightly raised; sepals long, narrow; berries small, round-conic, sometimes necked; apex blunt-pointed; color dull light red; seeds even with the surface; flesh pale red or whitish towards the center, variable in firmness, quite acid; quality no more than fair.

Michigan. **1.** *Horticulturist* **24**:248. 1869. **2.** *Va. Sta. Tech. Bul.* **11**:65. 1916.

Originated by B. Hathaway, Little Prairie Rond, Michigan, as a cross between a seedling of Old Scarlet and Burr. Grown extensively for a few years. Perfect. Plants medium in number, vigorous, and productive; fruit of medium size, round-conic to coxcomb, light scarlet; flesh whitish, soft, acid; good; midseason to late.

Michigan (of Engle). **1.** *U. S. D. A. Pom. Rpt.* 393. 1891. **2.** *N. Y. Sta. Bul.* **147**:186. 1898.

Originated by C. Engle, Paw Paw, Michigan, in 1889. Perfect. Plants medium in number and vigor, productive; fruit large, irregular, round-conic, bright crimson; flesh medium red, firm; good; very late.

Middlefield. **1.** *Rural N. Y.* **48**:522. 1889. **2.** *N. Y. Sta. Bul.* **109**:248. 1896.

Augur No. 70. **3.** *Rural N. Y.* **47**:640. 1888.

Originated by P. M. Augur & Sons, Middlefield, Connecticut; introduced in 1890. Imperfect. In the Station beds, plants very vigorous, numerous, healthy, productive; fruit large, retains size well, conical, the larger berries flattened, very glossy red, firm, well flavored, sprightly; very good; midseason.

Midnight. 1. *Ohio Sta. Bul.* **154**:50. 1904. 2. *N. Y. Sta. Bul.* **276**:74. 1906. *Hale's 11:59 P. M.* 3. Ont. Dept. Agr. *Fr. Ont.* 307. 1914.

A cross between Haverland and Parker Earle; introduced in 1901 by J. H. Hale, South Glastonbury, Connecticut. Perfect. Plants at this Station, few, lack vigor, unproductive; fruit-stems short, medium thick; fruit variable in size, round-conic to wedge, dull light and dark red, firm, medium juicy; fair to good; medium late. Not equal to standard varieties.

Miller. 1. *N. Y. Sta. Bul.* **218**:198. 1902.

Originated in 1893 by D. J. Miller, Millersburg, Ohio. Perfect. At this Station, plants vigorous, numerous, productive, attacked by leaf-spot; fruit medium to large, conic, glossy light red, soft, with whitish flesh, sweet; fair to good; midseason to late.

Millionaire. 1. *N. Y. Sta. Bul.* **309**:534. 1908.

Originated in 1902 by Henry Jerolaman, Hilton, New Jersey, as a cross between Hilton and Mary. It is not equal to standard sorts at this Station. Imperfect to semi-perfect. Plants vigorous, healthy, productive, medium in number; fruit-stems thick, prostrate; fruit large to above medium, variable in shape, light red, firm, pleasantly acid; fair; late midseason.

Mineola. 1. *Rural N. Y.* **48**:523. 1889. 2. *N. Y. Sta. Bul.* **147**:186. 1898.

Originated about 1885 by N. Hallock, Creedmore, New York; introduced in 1888. As grown here, plants very vigorous, low and stocky, medium productive; fruit-stems short, stout; calyx clings to the berry very firmly and when removed brings a hard core from the fruit; berries heart-shaped, large, light red, soft, well flavored; good.

Miner. 1. *Ill. Hort. Soc. Rpt.* 199. 1879. *Miner's Great Prolific.* 2. *Am. Pom. Soc. Cat.* 42. 1879. *Miner's Prolific.* 3. *Ibid.* 48. 1883

Originated by T. B. Miner, Linden, New Jersey; introduced in 1877. Grown considerably for local markets from 1880 to 1895. Added to the catalog of the American Pomological Society in 1879, from which it was removed in 1909. Perfect. Plants numerous, vigorous, productive; fruit medium to large, round-conic, dark crimson, colors unevenly; flesh medium red, medium firm, acid; good; midseason.

Minnehaha. 1. *Minn. Hort. Soc. Rpt.* 227. 1921.

A cross between Minnesota and Abington, originated at the Minnesota Fruit Breeding Farm, Excelsior, Minnesota; introduced in 1916. Although lacking in quality, it is worthy of trial because of the vigor and productivity of the plants. Perfect. On the Station grounds, plants medium to very numerous, vigorous, very productive, healthy; leaves large, thick, dark green; flowers late midseason, with large, crinkly petals; fruit-stems long, semi-erect; calyx large, raised, leafy; fruit large to medium, drops in size, round-conic to irregular blunt-wedge, glossy light to medium red, juicy, firm, distinctly whitish toward the center, subacid; fair; early midseason.

Minnesota. 1. *Minn. Hort. Soc. Rpt.* 227. 1921. *Minnesota No. 3.* 2. *N. Y. Sta. Bul.* **447**:73. 1918.

Originated in 1909 at the Minnesota Fruit Breeding Farm, Excelsior, Minnesota.

MICHEL

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The fruit is of the type of that of Dunlap. Perfect. In the Station beds, plants numerous, vigorous, healthy, very productive; fruit-stems medium in length and thickness, prostrate, branching into long, slender pedicels; calyx large, much raised, with long, reflexed sepals; seeds sunken; fruit large to medium, drops quickly in size, conic, the base irregular, strongly necked, glossy medium to dark red, apex distinctly pointed, often green tipped, very juicy, firm, pleasantly sprightly; good; medium early.

Minnetonka. 1. *Ohio Sta. Bul.* **236**:227. 1912. 2. *N. Y. Sta. Bul.* **447**:75. 1918.

A cross between a seedling of Splendid and Beder Wood, originated in Minnesota in 1904. Perfect. Plants at this Station, medium in number, vigor, and productiveness, healthy; fruit-stems very short, thick, prostrate; fruit of inferior size, blunt-wedge to blunt-conic, dull medium red, juicy, very firm, sprightly; fair; midseason.

Minnie. 1. *Ohio Sta. Bul.* **176**:77. 1905.

Minnie's Early. 2. *Ohio Sta. Bul.* **236**:227. 1912.

Originated by Louis Hubach, Judsonia, Arkansas; introduced in 1903. Perfect. Plants numerous, medium in vigor and productivity; fruit small, round-conic, scarlet; flesh whitish, firm, juicy, mildly subacid; good; early.

Minute Man. 1. *N. Y. Sta. Bul.* **218**:199. 1902. 2. *U. S. D. A. Farmers' Bul.* **1043**:33. 1919.

Originated as a chance seedling in an old strawberry bed about 1895 with George F. Wheeler, Concord, Massachusetts. Grown extensively near Fall River, Massachusetts, but has not succeeded in other localities. Imperfect. At this Station, plants medium in number and vigor, healthy; fruit above medium to large, retains size well, wedge to conic, glossy light red, soft, subacid; good; medium early.

Miranda. 1. *Can. Exp. Farms Rpt.* 298. 1913.

A seedling of Bubach originated in 1906 at the Central Experimental Farm, Ottawa, Canada. Plants medium in number; fruit large, irregular wedge-conic, dark crimson; flesh dark red, firm, briskly subacid; early midseason.

Miss Boston. 1. *N. Y. Sta. Bul.* **309**:534. 1908.

Introduced about 1905. Imperfect. Station plants few, medium to below in vigor, healthy, productive; fruit-stems short, thick, prostrate; fruit large to medium, drops rapidly in size, round-conic to wedge, glossy light to dark red, medium to firm, pleasantly acid, moderately juicy, with well-colored flesh; fair to good; medium early.

Missionary. 1. *N. Y. Sta. Bul.* **401**:185. 1915. 2. *Va. Sta. Tech. Bul.* **11**:66. 1916.

This variety originated about 1900 as a chance seedling with Nathaniel Gohn, Deep Creek, Virginia. The Florida shipment of strawberries is mostly made up of Missionary and Klondike. The former is the better yielder, the latter the better shipper. Perfect. Plants very numerous, tall, vigorous, healthy, medium to productive; leaves light green, thin; flowers early, large; fruit-stems long, prostrate; calyx small, raised, reflexed; fruit above medium to large, blunt-conic, often necked, medium to very dark dull red; flesh well colored to the center, juicy, very firm, quite tart, not of highest flavor; fair; early.

Missouri. 1. *Ohio Sta. Bul.* **166**:77. 1905.

Originated about 1900 with James Sons, Jr., Seligman, Missouri. Perfect. Plants numerous, unproductive; fruit medium to large, irregular round-conic, dull dark crimson; flesh red, rather soft, mildly subacid; fair; midseason.

Model. 1. *Ohio Sta. Bul.* **236**:227. 1912. 2. *N. Y. Sta. Bul.* **401**:186. 1915.

A supposed seedling of Belt, originated by M. S. Hubbell, East Toledo, Ohio; introduced in 1913 by M. Crawford, Cuyahoga Falls, Ohio. Perfect. As grown here, plants numerous, medium to large, vigorous, productive, healthy; fruit-stems thick, semi-erect; fruit large to medium, irregular in shape, often coxcomb, necked, dull light red, juicy, firm, sweet, well flavored, red to the center; good; midseason.

Mollie. 1. *Ohio Sta. Bul.* **236**:228. 1912.

Originated with W. J. Alt, Lancaster, Ohio; introduced in 1908. Imperfect. Plants medium in number, vigorous and productive; fruit large, wedge-conic, light crimson; flesh whitish, firm, juicy, sweet; good; midseason.

Monarch. 1. *Am. Pom. Soc. Cat.* 48. 1883. 2. *Va. Sta. Tech. Bul.* **11**:67. 1916.
Monarch of the West. 3. *Am. Hort. Ann.* 99. 1871.

A cross between Green Prolific and an unknown English sort, raised by Jesse Brady, Plano, Illinois, in 1867. It has been a favorite for local markets because of the large, attractively-shaped fruits, which, however, are soft and light in color. The blossoms are very sensitive to frost. The variety was placed in the catalog of the American Pomological Society in 1875, where it remained in the last catalog in 1909. Plants medium in number, vigorous, productive; fruit large to very large, round-conic, light scarlet; flesh whitish, soft, mildly subacid; very good; late midseason.

Monitor. 1. *Horticulturist* **17**:331, 418, Pl. 1862. 2. Fuller *Sm. Fr. Cult.* 97. 1867.

Originated in 1859 by A. S. Fuller, Ridgewood, New Jersey, as a seedling of Peabody. Perfect. Plants vigorous and productive; fruit large, round-conic, necked, bright scarlet; flesh white, firm, moderately juicy, subacid; good.

Monitor (of Russell). 1. *N. Y. Sta. Bul.* **218**:199. 1902.

A supposed cross between Captain Jack and Cumberland, originated by Z. T. Russell, Carthage, Missouri, in 1893. Perfect. On the Station grounds, plants very numerous, medium in vigor, healthy, very productive; blossoms show conspicuously above the foliage; fruit above medium to large, retains size well, wedge, pale red, firm, juicy, whitish at the center; fair to good.

Monmouth. 1. *N. Y. Sta. Bul.* **24**:335. 1890.

Originated in New Jersey in 1885, and is supposed to be a cross between Jersey Queen and Glendale. Perfect. In the Station beds, plants of dwarfish growth, rather weak, unproductive; fruit-stems very short; fruit large, round-conic, glossy medium red, firm, pleasantly tart; good; early.

Monroe. 1. *N. Y. Sta. Bul.* **336**:60. 1911.

Raised in 1905 by J. A. Morgan, Scottsville, New York, as a seedling of Sample growing adjacent to plants of Rough Rider and Parker Earle. Perfect. Plants at this Station,

numerous, of medium size, vigor, and yield, attacked by leaf-spot; leaves thick, dark green; flowers early; fruit-stems medium in length and thickness; calyx large, flattened, leafy; seeds sunken; fruit large, retains size well, round-conic, variable in color, juicy, medium firm, sweet; good; early.

Monroe Scarlet. 1. *Mag. Hort.* **17**:400. 1851. 2. Downing *Fr. Trees Am.* 996. 1869.

Originated about 1847 by Ellwanger & Barry, Rochester, New York, as a seedling of Hovey. Imperfect. Plants vigorous, productive; berries large, roundish, with a short neck, light scarlet, tender, juicy; very good; early.

Montevideo Pine. 1. *Cultivator* **3**:348. 1846.

Originated by William Prince, Flushing, New York, about 1845. Plants vigorous; fruit large, regular, conic, scarlet, pineapple flavored; late.

Montmorency. 1. *Am. Pom. Soc. Rpt.* 293. 1921.

Introduced about 1919 by Augustine & Company, Normal, Illinois. Perfect. At this Station, plants very numerous, medium in vigor and height, very productive, healthy; fruit-stems short, thick, erect; fruit small to above medium, oval to conic, strongly necked, very glossy dark red, juicy, medium firm, tart, inferior in flavor; poor.

Moore Prolific. 1. *Mich. Sta. Bul.* **55**:14. 1889.

Originated in Plymouth, Michigan, in 1884. Perfect. Plants numerous, vigorous, productive; fruit medium to large, long-conic to oblong-conic, scarlet; flesh moderately firm, subacid; good; early midseason.

More Favorite. 1. *N. Y. Sta. Bul.* **147**:186. 1898.

Originated by C. J. More, Jamestown, New York; introduced about 1897. Imperfect. Plants numerous, very vigorous, productive; fruit small, roundish, scarlet; flesh moderately firm; good; early.

Morgan. 1. *Am. Gard.* **21**:630. 1900.

Morgan Favorite. 2. *Mich. Sta. Bul.* **163**:69. 1898.

Morgan No. 1. 3. *N. Y. Sta. Bul.* **147**:187. 1898.

Originated with Joseph A. Morgan, Scottsville, New York, as a supposed cross between Sharpless and Triomphe. Perfect. Plants numerous, vigorous, unproductive; fruit large, irregular conic, dark crimson; flesh medium red, medium firm, mildly subacid; good; midseason. It is very similar to New York.

Morning Star. 1. *N. Y. Sta. Bul.* **309**:534. 1908.

Originated about 1908 by Mark T. Thompson, Rio Vista, Virginia. Perfect. Station plants few, rather weak, healthy, very unproductive; fruit-stems short, prostrate; fruit small to above medium, round-conic, dark red, firm, mild, well flavored, with red flesh; good; midseason.

Mount. 1. *N. J. Hort. Soc. Rpt.* 55, 57. 1907.

A chance seedling found in a fence corner by Samuel Mount, Hightstown, New Jersey; introduced about 1907. Perfect. Plants medium in number, moderately productive; fruit of medium size, crimson; flesh medium firm; good; early.

Mount Holyoke. 1. *N. Y. Sta. Bul.* **44**:143. 1892.

Holyoke. 2. *Am. Pom. Soc. Rpt.* 73. 1895.

Originated in Massachusetts; introduced about 1890. Perfect. As grown here, plants very vigorous, with light green foliage; blossoms very profusely but fails to develop over one-half of its crop; fruit of medium size, irregular conic, dark scarlet; flesh medium firm; good; midseason.

Mount Vernon. 1. *Mich. Hort. Soc. Rpt.* 169. 1882. 2. *N. Y. Sta. Bul.* **24**:335. 1890.

Kirkwood. 3. *Mich. Hort. Soc. Rpt.* 166. 1882.

Shuckless. 4. *N. Y. Sta. Bul.* **76**:438. 1894.

A seedling of Jucunda originated about 1875 by T. Bishop of New Jersey. Added to the catalog of the American Pomological Society in 1883, from which it was removed in 1909. Perfect. On the Station grounds, plants vigorous, few, productive slightly injured by leaf-spot; fruit-stems erect, stiff, long; fruit of medium size, obtuse-conic, bright red, soft, well flavored, subacid; very good; late.

Moyamensing. 1. *Mag. Hort.* **18**:210, 407. 1852. 2. Downing *Fr. Trees Am.* 676. 1857.

A seedling of Hudson Bay, raised by Gerard Schmitz, Philadelphia, Pennsylvania; introduced about 1848. It was a popular sort in New Jersey and Pennsylvania about 1855. Added to the catalog of the American Pomological Society in 1862, from which it was removed in 1869. Imperfect. Plants moderately vigorous, productive; fruit medium to large, broad-conic, dark crimson; flesh red, firm, acid; very good; midseason.

Mrs. Fisher. 1. *N. Y. Sta. Bul.* **218**:199. 1902. 2. *Ohio Sta. Bul.* **154**:38. 1904.

Originated with J. H. Black, Son & Company, Hightstown, New Jersey; introduced in 1899. Imperfect. In the Station beds, plants vigorous, numerous, attacked by leaf-spot, moderately productive; fruit large to very large, decided wedge, glossy light red, medium firm; fair; late. Size unusually good for a late berry.

Mrs. Garfield. 1. *Ohio Hort. Soc. Rpt.* 108. 1880–81. 2. *N. Y. Sta. Bul.* **24**:335. 1890.

A seedling of Sharpless which originated in 1868 with Matthew Crawford, Cuyahoga Falls, Ohio. Perfect. Plants at this Station, numerous, weak, attacked by leaf-spot, unproductive; fruit-stems short; fruit medium to small, conic, glossy red, subacid, soft; poor to fair; early.

Mrs. McDowell. 1. *Mich. Sta. Bul.* **195**:81. 1902.

Introduced about 1902. Perfect. Plants numerous, vigorous, productive; fruit medium to large, irregular round-conic, light scarlet; flesh soft, sweet; good; late.

Mrs. Mark Hanna. 1. *Ohio Sta. Bul.* **146**:35. 1903.

Originated in 1898 by Mark T. Thompson, Rio Vista, Virginia. Perfect. Plants numerous, vigorous, moderately productive; fruit large, broad-conic, crimson; flesh pink, soft, subacid; fair; midseason.

Mrs. Miller. 1. *N. Y. Sta. Bul.* **309**:535. 1908.

Originated in 1893 by D. J. Miller, Millersburg, Ohio. Imperfect. At this Station, plants medium in number and vigor, unproductive, slightly injured by leaf-spot; fruit-stems medium in length, thick, prostrate; fruit large to medium, drops rapidly in size,

variable in shape, with uneven surface, glossy dark red, firm, pleasantly acid, well flavored; good; midseason.

Mulberry. 1. *Trans. Lond. Hort. Soc.* **6**:203. 1826. 2. *Mag. Hort.* **1**:302. 1835.

Thought to have originated in England prior to 1800, although another account mentions it as a native of New York. It was grown extensively near Boston from 1810 to 1835. Plants numerous, vigorous, productive; fruit of medium size, ovate-conic, with a short neck, dull dark red; flesh dark red, juicy, subacid; good; midseason.

Multnomah. 1. *Ore. Bien. Crop Pest & Hort. Rpt.* 79. 1915.

Originated by L. S. Otis, Newberg, Oregon, as a cross between Clark and Gold Dollar; introduced about 1921. Perfect. Plants numerous, weak, unproductive; fruit of medium size, roundish conic, dark red; flesh medium red, moderately firm, sweet; good; midseason.

Murray. 1. *U. S. D. A. Pom. Rpt.* 265. 1892. 2. *N. Y. Sta. Bul.* **109**:236. 1896.

Originated with J. S. Westbrook, Faison, North Carolina; introduced in 1892. Imperfect. Station plants vigorous, numerous, healthy, productive; fruit-stems medium in length; fruit medium to large, dark red, roundish, firm; fair; early.

Murray (of Smith). 1. *Can. Exp. Farm Bul.* **62**:35. 1909.

Originated by A. M. Smith, St. Catherines, Ontario; introduced about 1895. Perfect. Plants numerous, vigorous, productive; fruit large, irregular wedge to conic, scarlet; flesh bright red, firm, juicy, subacid; good; late midseason.

Muskingum. 1. *Ohio Sta. Bul.* **III**:No. 7, 217. 1890. 2. *N. Y. Sta. Bul.* **64**:9 1894. *Kearns.* 3. *Rural N. Y.* **47**:195. 1888.

Originated with Grant Kearns, Zanesville, Ohio, in 1884; introduced in 1892 by S. R. Moore, Zanesville. It has had considerable value as a late sort. Perfect. Station plants few, lacking in vigor, unproductive; fruit-stems good; fruit of medium size, variable in shape, bright red, moderately firm, acid; fair; midseason to late.

Myer. 1. *N. Y. Sta. Bul.* **336**:61. 1911. 2. *U. S. D. A. Farmers' Bul.* **1043**:33. 1919.

A chance seedling found in 1906 in a bed of many varieties by Myer & Son, Bridgeville, Delaware. Grown extensively in southern Delaware, where it is liked because of its productivity, good size, and attractive color. Imperfect. As grown here, plants medium in number and size, healthy, very productive; fruit-stems short, thick, semi-erect; fruit above medium in size, conic, glossy medium red, colors unevenly, medium firm, rather dry, mild, sweet; good; midseason.

Myriad. 1. *Ohio Sta. Bul.* **166**:77. 1905.

Originated by Louis Hubach, Judsonia, Arkansas; introduced in 1903. Perfect. Plants very numerous, moderately productive; fruit small, conic, crimson; flesh red, soft; poor; midseason.

Myrtle Murrell. 1. *N. Y. Sta. Bul.* **447**:74. 1918.

A cross between Hoffman and Heflin, raised in 1905 by S. S. Murrell, Marion Station, Maryland. Perfect. On the Station grounds, plants very numerous, medium in vigor, unproductive, attacked by leaf-spot; fruit-stems short, slender, erect; fruit inferior in size,

long-conic, necked, dull light red, variable in firmness, mild, sweet, whitish at the center; good; midseason.

Mystic. 1. *Mich. Sta. Bul.* **100**:9. 1893.

Originated in Indiana; introduced about 1892. Plants numerous, vigorous, moderately productive; fruit medium to large, round-conic, bright dark crimson; flesh light red, firm; very good; late midseeson.

Nan. 1. *Rural N. Y.* **53**:437, fig. 112. 1894. 2. *N. Y. Sta. Bul.* **91**:193. 1895.

Introduced by T. J. Dwyer, Cornwall, New York, in 1893. Perfect. As grown here, plants vigorous, medium in number, healthy, moderately productive; fruit-stems good; fruit medium to large, glossy red, round-conic, firm, subacid; good; midseason.

Nanticoke. 1. *N. Y. Sta. Bul.* **401**:186. 1915.

A seedling of unknown parentage originated in 1907 by S. Barkley, Nanticoke, Maryland. Perfect. On the Station grounds, plants numerous, vigorous, productive, with slight leaf-spot; fruit-stems slender, prostrate; calyx large, flat, strongly reflexed, very leafy; seeds much sunken; fruit large to below medium, roundish to blunt-wedge, irregular, furrowed, dull light red, firm, subacid, whitish at the center, inferior in flavor; poor; early. Easily surpassed by better varieties.

Naomi. 1. Downing *Fr. Trees Am.* 996. 1869.

Originated with Samuel Miller, Bluffton, Missouri; introduced about 1866. Perfect. Berries medium in size, roundish oval, dark scarlet; flesh whitish, soft, sweet; fair.

Naomi (of Stayman). 1. *Va. Sta. Tech. Bul.* **11**:69. 1916.

Originated with James Stayman, Leavenworth, Kansas; introduced about 1894. Imperfect. Berries large, roundish, light crimson, firm, acid; good; midseason.

Napoleon III. 1. *Gard. Mon.* **3**:285. 1861.

Originated by Ferdinande Gloede, England; introduced to America about 1860 and considerably grown here about 1870; listed in the American Pomological Society's fruit catalog in 1875. Perfect. Plants vigorous, productive; berries large, irregularly round-conic to coxcomb, light scarlet; flesh whitish, firm, sweet; good; late.

Nash. 1. *Ia. Sta. Bul.* **64**:193, 205. 1902.

Perfect. Plants small, not hardy; berries small, irregular conic, crimson, moderately firm; poor; midseason.

Nathalie. 1. *U. S. Pat. Off. Rpt.* 199. 1861.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Imperfect. Berries large, conic, light scarlet; good.

Necked Pine. 1. Downing *Fr. Trees Am.* 676. 1857.

Unique Prairie. 2. *Horticulturist* **3**:71. 1848–49.

A native of Ohio; introduced prior to 1829; a variety of *Fragaria virginiana;* much cultivated in the Mississippi Valley near Cincinnati from 1830 to 1850. Imperfect. Berries medium in size, ovate to conic, with a distinct neck, light scarlet; flesh whitish, soft, acid; good; moderately early.

Nehring. 1. *Va. Sta. Tech. Bul.* **11**:70. 1916.

Nehring's Gem. 2. *Am. Pom. Soc. Sp. Rpt.* 81. 1904–05. 3. *N. Y. Sta. Bul.* **309**: 535. 1908.

Originated by W. F. Nehring about 1891 at Strasburg, Illinois, probably as a seedling of Glendale. Imperfect. In the Station beds, plants few, vigorous, healthy, unproductive; fruit-stems thick, prostrate; calyx decidedly sunken; fruit above medium to large, drops in size, round-conic to irregular wedge, glossy dark red, firm, pleasantly acid, well flavored; good to very good; midseason.

Nellie Gray. 1. *Va. Sta. Tech. Bul.* **11**:70. 1916.

Introduced in 1913. Perfect. Berries medium to large, acid, completely covered with seeds, producing a yellow appearance; foliage resembling orange leaves; early to midseason; a curiosity only.

Nellis Triumph. 1. *N. Y. Sta. Bul.* **447**:74. 1918.

A seedling of unknown parentage discovered in 1912 by J. H. Nellis, Paterson, New Jersey. Semi-perfect to perfect. Plants at this Station, medium in number and vigor, healthy, very productive; fruit-stems thick, prostrate, branching freely into long, slender pedicels; fruit large, retains size well, blunt-conic, broad at the base, dull light red, very juicy, soft, subacid; good; midseason.

Neptune. 1. *Ind. Sta. Bul.* **38**:9, 11. 1892.

Originated in Ohio; introduced in 1890. Perfect. Berries medium to large, round-conic, necked, crimson; flesh light red, moderately firm; good; midseason.

Nettie. 1. *Rural N. Y.* **57**:498. 1898. 2. *N. Y. Sta. Bul.* **309**:536. 1908.

Originated in 1893 by J. H. Black, Son & Company, Hightstown, New Jersey. Imperfect. At this Station, plants medium to numerous, vigorous, healthy, productive; fruit-stems long, thick, erect; calyx leafy, raised; seeds sunken; fruit very large to above medium, holds its size well, variable in shape, dull light to medium red, medium to firm, acid; good; late. A showy variety not of highest flavor or quality.

Neunan. 1. *Va. Sta. Tech. Bul.* **11**:70. 1916.

Neunan's Prolific. 2. *Am. Pom. Soc. Cat.* 42. 1879.

Charleston. 3. *Am. Gard.* **12**:657. 1891.

Originated by a Mr. Neunan, Charleston, South Carolina. This was the first of the southern varieties to be grown in quantity for northern markets. Between 1870 and 1890 it was a standard commercial sort in the southern states; now it has almost disappeared from cultivation. It was listed in the fruit catalog of the American Pomological Society from 1879 to 1909. Perfect. Plants tall, vigorous, productive; berries medium in size, roundish conic, with a short neck, light crimson, very firm, acid; fair; early to midseason.

Neverfail. 1. *Am. Pom. Soc. Rpt.* 168. 1920.

A cross between Bubach and Superb, originated by D. J. Miller, Millersburg, Ohio, in 1913. Semi-perfect. Station plants dwarfish, unproductive; autumn-bearing; berries medium in size, conic, medium dark glossy red, firm, juicy, subacid; fair.

New Dominion. 1. *Can. Cent. Exp. Farm Bul.* **5**:19. 1889. 2. *N. Y. Sta. Bul.* **24**:336. 1890.

A seedling of Jucunda originated by C. N. Biggar, Lundy Lane, Ontario, in 1873. Perfect. Station plants vigorous, very numerous, attacked slightly by leaf-spot, productive; fruit-stems erect; fruit large, retains size well, obtuse-conic, glossy light red, soft, subacid; fair; late.

New Early. 1. *Ohio Sta. Bul.* **236**:228. 1912.

Grown by C. S. Tuttle in Ohio in 1909. Perfect. Plants moderately vigorous; berries small to medium, roundish, very light scarlet, soft; good; very early.

New Home. 1. *Rural N. Y.* **65**:570. 1906. 2. *N. Y. Sta. Bul.* **309**:537. 1908.

Origin unknown; introduced by W. F. Allen, Salisbury, Maryland, in 1905. Perfect. On the Station grounds, plants few, medium in vigor, healthy, unproductive; fruit-stems thick, erect; seeds raised, with short, dark, characteristic styles; fruit above medium in size, drops as the season advances, round-conic, glossy light to dark red, very firm, mildly acid; fair; late.

New Jersey Scarlet. 1. Downing *Fr. Trees Am.* 997. 1869.

Originated by E. W. Durand, Irvington, New Jersey; introduced in 1868. Perfect. Plants vigorous, productive; berries medium in size, conic, with a long neck, light scarlet; flesh whitish, moderately firm, mildly subacid; good; early.

New Shuckless Wonder. 1. *Am. Pom. Soc. Rpt.* 168. 1920.

Introduced by H. W. Buckbee, Rockford, Illinois. Plants vigorous, productive; calyx detaches easily; berries long-conic, bright red, very firm, sweet, with few seeds.

New York. 1. *Am. Gard.* **20**:69, fig. 24. 1899. 2. *N. Y. Sta. Bul.* **218**:199. 1902.

This variety was originated in 1890 by Martha Y. Tanner, Slaterville Springs, New York, as a seedling of Bubach. New York very closely resembles several other varieties each of which, however, seems to be of authentic independent origin. Perfect. Plants medium in number, tall, vigorous, healthy, productive; fruit-stems of medium length, thick, semi-erect; calyx often very large, pale green, detaches very easily; fruit large, wedge to conic, irregular, light to dark red; flesh light red, variable in firmness, not very juicy, mildly subacid; good; midseason.

Nicanor. 1. *Horticulturist* **22**:273, fig. 155. 1867.

Originated about 1860 with Ellwanger & Barry, Rochester, New York, as a cross between Triomphe and Wilson; included in the American Pomological Society's fruit catalog from 1869 to 1883. Perfect. Plants vigorous, productive; berries medium in size, round-conic to oval-conic, bright scarlet, firm, sweet; good; early.

Nicaragua. 1. *Va. Sta. Tech. Bul.* **11**:71. 1916.

Originated in 1906 by D. C. Tibbs, East Nashville, Tennessee, as a seedling of Haverland; introduced in 1912. Perfect. Berries large, long-conic, dark crimson, firm; good; midseason.

Nich Ohmer. 1. *Rural N. Y.* **58**:514. 1899. 2. *U. S. D. A. Farmers' Bul.* **1043**:33. 1919.

Nich Ohmer was originated in the early nineties by J. F. Beaver, Dayton, Ohio, as a seedling of Middlefield; introduced in 1898. The variety is exceedingly variable in plant and fruit and needs special culture. Perfect. Plants medium in number and height, vigorous, variable in health and yield; fruit-stems medium in length, thick, prostrate; pedicels long; fruit large, round-conic to blunt-wedge, glossy dark red; flesh variable in color, firmness, and juiciness, mildly subacid; good; midseason.

Nichols. 1. *Am. Hort. Ann.* 108. 1870.

Raised by G. W. Nichols, Summit, New Jersey; introduced in 1870. Berries large, conic, firm; good.

Nigger. 1. *Mich. Sta. Bul.* **100**:9. 1893.

Introduced about 1891. Perfect. Plants small, productive; berries small to medium, round-conic, dark crimson; flesh dark red, firm; good; medium early.

Nigh. 1. *Mich. St. Bd. Agr. Rpt.* 99. 1887.

Nigh's Superb. 2. *Cult. & Count. Gent.* **48**:660. 1883.

Originated by J. W. Nigh, Piqua, Ohio; introduced about 1881. Imperfect. Berries large, long-conic, light scarlet, soft, sweet; good.

Nim. 1. *Mich. Sta. Bul.* **122**:5. 1895.

Introduced about 1890. Imperfect. Berries medium in size, irregular round-conic, light crimson, moderately firm; poor; late.

Nimrod. 1. *N. Y. Sta. Bul.* **309**:537. 1908.

Originated about 1898 by John F. Beaver, Dayton, Ohio. Perfect. In the Station beds, plants few, weak, low growing, attacked by leaf-spot, very unproductive; fruit-stems very short, slender; fruit above medium to small, round-conic, glossy light and dark red, very firm, pleasantly acid; good; early midseason.

Nina. 1. *Rural N. Y.* **56**:471. 1897. 2. *N. Y. Sta. Bul.* **218**:199. 1902.

Originated in 1892 with J. H. Black & Company, Hightstown, New Jersey, as a cross between Jersey Queen and Charles Downing. Perfect. Plants at this Station, medium in vigor, few, attacked severely by leaf-spot, unproductive; fruit medium to large, irregular in shape, glossy red; calyx detaches very easily; flesh medium in firmness and juiciness, sweet, well colored, fair; midseason.

Ninety-Six. 1. *Am. Gard.* **20**:510. 1899. 2. *Ohio Sta. Bul.* **166**:77. 1905.

Originated in 1895 by G. W. Howard, Stevensville, Michigan, as a cross between Barton and Gandy. Perfect. Berries large, round-conic, scarlet; flesh light red, moderately firm, mildly subacid; good; midseason to late.

No. 999 Giant. 1. Gardner *Cat.* 1921.

Raised by C. F. Gardner, Osage, Iowa, as a cross between a seedling of Progressive and a big type berry. Of little value. Perfect. Plants at this Station, few, vigorous, healthy, very productive; autumn-bearing; leaves small, dark green; flowers small; fruit-

stems thick, erect; fruit variable in size, round-conic, unattractive light red, medium juicy, firm, subacid to sprightly; fair; late midseason.

Noble. 1. *Gard. Chron.* **6**:79. 1889.

Laxton's Noble. 2. *N. Y. Sta. Bul.* **44**:143. 1892.

Originated in 1887 by Laxton Brothers, Bedford, England; introduced to America about 1890. Perfect. Station plants, moderately vigorous and productive; berries large, round, dark red; flesh dark red, soft, sweet; very good; early.

Nokomis. 1. *Am. Pom. Soc. Rpt.* 293. 1921.

Minnesota No. 489. 2. *Minn. Hort. Soc. Rpt.* 226. 1921.

A seedling of Dunlap by Abington; originated at the Minnesota Fruit Breeding Farm, Excelsior, Minnesota. Perfect. At this Station, plants numerous, vigorous, very tall, very productive, healthy; leaves large, thick, glossy dark green; flowers midseason, medium to large, with crinkly petals; fruit-stems very long, thick, prostrate; pedicels short, slender; calyx raised; seeds sunken; fruit large to medium, retains size well, blunt-conic, necked, glossy light to medium red, juicy, medium firm, with well-colored flesh, subacid to sprightly; fair; late midseason. Worthy of test.

Noland. 1. *N. Y. Sta. Bul.* **187**:187. 1898.

Originated by J. P. Noland, Peninsula, Ohio; introduced about 1896. Perfect. Station plants vigorous, moderately productive; berries large, irregularly long-conic, scarlet, moderately firm; fair; midseason.

Nonesuch. 1. *N. Y. Sta. Bul.* **336**:61. 1911.

Found growing wild in a fence corner by Peter A. Berry, Logansport, Indiana, in 1895; supposed to be a seedling of Sharpless which grew near by. Perfect. Station plants very numerous, very vigorous, with some mildew and leaf-spot, very productive; blossoms appear in masses above the foliage; fruit-stems long, slender, erect; fruit variable in size and shape, dull light red, colors unevenly, green-tipped, juicy, firm, subacid, aromatic: good; very late.

Nor-J. 1. *Am. Pom. Soc. Rpt.* 168. 1920.

Introduced in 1918 by Albert F. Etter, Ettersburg, California. "A berry of the Beach type of flavor, exceedingly large, pink in color with white flesh like Rose Ettersburg; exceedingly productive."

Norma. 1. *Am. Gard.* **24**:380. 1903.

Originated with M. H. Ridgeway, Wabash, Indiana. Perfect. Plants productive; berries medium to large, round-conic, light crimson, firm; good; late.

Norman. 1. *Gard. Mon.* **18**:145. 1876. 2. *Col. O. Hort. Soc. Rpt.* 120. 1887.

Originated in 1871 by Matthew Crawford, Cuyahoga Falls, Ohio, who named it after his son. Perfect. Berries medium to large, irregular, crimson, firm, acid; very good; early.

North Jersey. 1. *Am. Pom. Soc. Rpt.* 168. 1920.

Introduced by the North Jersey Nurseries, Milburn, New Jersey. Plants very productive; berries medium large, round, pointed, dark glossy red; very good.

North Shore. 1. *N. Y. Sta. Bul.* **309**:537. 1908.

Raised in 1898 by William H. Monroe, Beverly, Massachusetts, as a seedling of Brandywine. Perfect. As grown here, plants few, medium in vigor, attacked by leaf-spot, unproductive; fruit-stems short, thick, prostrate; fruit large to medium, irregular in shape, dull dark red, firm, mildly acid, well flavored, with good flesh color; good to very good; late.

Northfield. 1. *Am. Pom. Soc. Rpt.* 168. 1920.

Introduced by C. W. Atwater & Son, Agawam, Massachusetts. Plants vigorous, productive; berries large, bright red, firm, spicy; late.

Norwood. 1. *Ill. Hort. Soc. Rpt.* 223. 1910. 2. *N. Y. Sta. Bul.* **401**:186. 1915.

A cross between Maximus and Marshall originated in 1905 by N. B. White, Norwood, Massachusetts. Perfect. On the Station grounds, plants above medium in size, vigorous, healthy, moderately productive; fruit above medium to small, variable in shape, necked, dull light red, rather dry, whitish at the center, subacid, inferior in flavor; poor; midseason.

Notre Dame. 1. *Va. Sta. Tech. Bul.* **11**:72. 1916.

Introduced in 1914. Berries large, round-conic to coxcomb, light crimson; flesh light red, mildly subacid; fair; midseason.

Oak.

Oaks Early. 1. *N. Y. Sta. Bul.* **309**:538. 1908.

A chance seedling found in the wild on the farm of William Tull, Somerset County, Maryland; introduced in 1906. Perfect. As grown here, plants medium in number, vigorous, healthy, unproductive; fruit-stems thick, semi-erect; fruit above medium in size, soon becoming smaller, long-conic, light to dark red, firm, pleasantly acid, well flavored, with red flesh: fair to good; early.

Ocean City. 1. *N. Y. Sta. Bul.* **147**:187. 1898.

A supposed cross between Wilson and Sharpless originated in 1887 in Berlin, Maryland. Perfect. Plants numerous, vigorous, moderately productive; fruit large, irregular, dark scarlet; flesh light red, moderately firm, mildly subacid; good; midseason.

Odessa. 1. *Mich. Sta. Bul.* **100**:12. 1893.

Originated with J. Y. Cameron, East Rochester, Ohio; introduced about 1892. Imperfect. Plants medium in number and vigor, unproductive; fruit large, irregular, bright scarlet; flesh light red, medium firm; fair; late midseason.

Ohio. 1. *Rural N. Y.* **46**:511. 1887. 2. *N. Y. Sta. Bul.* **24**:336. 1890.

A seedling of Kentucky originating in 1886 with George L. Miller, Butler County, Ohio. Imperfect. On the Station grounds, plants vigorous, few, with slight leaf-spot, unproductive; fruit-stems erect, stiff; fruit large to small, conic or wedge, glossy red, firm but scalds badly, very tart; fair; late.

Ohio Boy. 1. *N. Y. Sta. Bul.* **401**:187. 1915.

Originated by A. A. Eppert, Amelia, Ohio; introduced in 1910. Perfect. In the Station beds, plants numerous, vigorous, very productive, healthy; flowers large, with crinkly petals; fruit-stems long, thick, semi-erect, much branched; calyx very large; fruit

variable in size, wedge, dull medium red, colors unevenly, juicy, firm, subacid, with an inferior flavor; poor; midseason.

Ohio Centennial. 1. *N. Y. Sta. Bul.* **24**:339. 1890. 2. *Ibid.* **36**:633. 1891.

Originated by George Townsend, Gordon, Ohio; introduced about 1889. Imperfect. In the Station beds, plants low growing, stocky, with very dark green foliage; fruit-stems short, stiff; fruit large, heart-shaped, with numerous coxcombs, glossy red, firm, well flavored; very good; medium late.

Ohio Mammoth. 1. *Mag. Hort.* **13**:368. 1847.

A cross between Hovey and Burr, raised by John Burr, Columbus, Ohio; introduced in 1847. Perfect. Plants vigorous and productive; fruit large, long-conic, light red; flesh sweet; good.

Old John Brown. 1. *Horticulturist* **18**:263. 1863.

Originated in 1856 by H. Schroeder, Bloomington, Illinois, as a cross between Wilson and "Chilian." Perfect. Plants productive; fruit large, round-conic, light crimson; flesh soft, sweet; good; early.

Old Pine. 1. *Trans. Lond. Hort. Soc.* **6**:195. 1826. 2. Downing *Fr. Trees Am.* 532. 1845.

Pineapple. 3. McMahon *Am. Gard. Cal.* 477. 1806.

Carolina. 4. Miller *Gard. Dict.* **2**: 1807.

An old English sort grown extensively in this country prior to 1835, especially in the gardens of amateurs. Its origin is unknown; Downing states that it is believed to have been taken to England from Carolina. It was widely distributed in England as early as 1759. Perfect. Plants few, productive under high culture; fruit large, conic, necked, bright scarlet; flesh pale scarlet, firm, juicy, rich; very good; late.

Old Scarlet. 1. *Trans. Lond. Hort. Soc.* **6**:152. 1826. 2. Downing *Fr. Trees Am.* 528 1845.

Early Scarlet. 3. Prince *Pom. Man.* **2**:186. 1832.

Early Virginia. 4. *Mag. Hort.* **2**:91. 1836.

A slightly improved form of *Fragaria virginiana* grown extensively in this country until about 1845. In 1826 it was said to have been cultivated in English gardens for two hundred years and was doubtless introduced from North America. It is still grown in England and Scotland for preserving. Plants numerous, vigorous, productive; fruit small, roundish conic, light scarlet; flesh whitish, medium firm, subacid; good; early.

Olga Petrovka.

Received at this Station in 1923 from Louis Graton, Whitman, Massachusetts, with the statement that it was a seedling of Howard, originated by a Mr. Stevenson, Guelph, Ontario. As grown here it is well worthy of trial as an early sort. Perfect. At this Station, plants medium in number and vigor, healthy, productive; leaves small, dark green; flowers early midseason, often large, with crinkly petals; fruit-stems short, thick, prostrate; pedicels long, slender; calyx large, raised, leafy, detaches readily; seeds sunken; fruit large, retains size well, long-conic, necked, glossy dark red, juicy, firm, sweet, with red flesh; good; very early.

Olive. 1. *Va. Sta. Tech. Bul.* **11**:73. 1916.

Olive's Pride. 2. *Ohio Sta. Bul.* **154**:52. 1904.

A seedling of Crescent originated by J. W. Hall, Marion, Indiana; introduced about 1903. Perfect. Plants medium in number; fruit medium in size, wedge-conic, light crimson; flesh medium red, firm, mildly subacid; good; midseason.

Oliver. 1. *N. Y. Sta. Bul.* **24**:337. 1890. 2. *Ibid.* **36**:633. 1891.

Originated with Phil Strubler, Napierville, Illinois. Perfect. As grown here, plants very vigorous, numerous, healthy, unproductive; fruit-stems long, stiff; fruit large, conic, of Sharpless type, with the characteristic green tips of that variety, firm, subacid; fair; midseason to late.

Oliver Goldsmith. 1. *W. N. Y. Hort. Soc. Rpt.* 27. 1881.

A cross between Charles Downing and Monarch raised by William Bennison, Delaware, Ohio, in 1874. Perfect. Plants numerous, vigorous, very productive; fruit large, round-conic, with a long neck, bright crimson; flesh firm, mildly subacid; good; midseason.

Olympia. 1. *N. Y. Sta. Bul.* **309**:538. 1908.

Originated with W. M. Gray of California; introduced about 1903. Perfect. Station plants few, medium in vigor, attacked by leaf-spot, very productive; fruit-stems erect; calyx detaches readily; fruit large to small, round-conic, broad at the base, light red, juicy, firm, acid, inferior in flavor; poor; midseason.

Omega. 1. *Ann. Hort.* 202. 1892. 2. *N. Y. Sta. Bul.* **109**:236. 1896.

Originated by Oakley Apgar, Califon, New Jersey; introduced in 1892. Imperfect. In the Station beds, plants numerous, medium in vigor, productive; fruit-stems short; fruit large, irregular wedge, glossy light red, firm; fair; medium late.

Omega (of Indiana). 1. Farmer *Cat.* 14. 1910.

A cross between Captain Jack and Cumberland raised by L. H. Girton, Bristol, Indiana, in 1886. Semi-perfect. Plants at this Station, medium in number, size, and vigor, productive, healthy; fruit-stems long, thick, above medium in size, round-conic, furrowed, dull medium red, moderately juicy, firm, with a hollow center, sweet; good; early to late.

Omega (of Maine). 1. *N. Y. Sta. Bul.* **209**:539. 1908.

A chance seedling found in an asparagus bed by A. V. Metcalf, Brunswick, Maine, in 1904. Perfect. On the Station grounds, plants medium in number and vigor, attacked by leaf-spot, productive; fruit-stems erect, short; fruit large to medium, drops in size, wedge to long-conic, glossy medium to dark red, firm, acid, well flavored, with red flesh; fair to good; midseason.

Ona. 1. *Ann. Hort.* 134. 1893. 2. *N. Y. Sta. Bul.* **91**:193. 1895.

A cross between Crescent and Sharpless originated by F. M. Kilbourne, Lakeville, Minnesota. Imperfect. At this Station, plants few, medium in vigor and yield; fruit-stems good; fruit medium or above in size, round-conic, glossy dark red, moderately firm; fair; medium early.

Oneida. 1. *N. Y. Sta. Bul.* **309**:539. 1908.

A seedling of Sharpless originated in 1903 by Mrs. Isaac Hildreth, Rome, New York. Perfect. Station plants very numerous, vigorous, healthy, very productive; fruit-stems long, medium thick; fruit variable in size and shape, irregularly furrowed, light and dark red, firm, aromatic, not very juicy, mild; fair to good; midseason.

Onward. 1. *N. Y. Sta. Bul.* **447**:75. 1918.

Raised by Samuel Cooper, Delevan, New York, as a cross between Autumn and Cooper; introduced in 1914. Perfect. As grown at this Station, Onward cannot be distinguished from Advance and the reader is referred to that variety for description.

Oom Paul. 1. *Rural N. Y.* **60**:493. 1901. 2. *Ohio Sta. Bul.* **154**:52. 1904.

Originated by T. S. Palmer, Columbia, New York, as a cross between Jessie and Bubach; introduced in 1903. Perfect. Plants medium in number, vigorous, productive; fruit large, irregular, round-conic to wedge-shape, dark red; flesh red, firm, mildly subacid; good; early midseason.

Ophelia. 1. *Can. Exp. Farms Rpt.* 298. 1913.

Originated in 1906 at the Central Experimental Farm, Ottawa, Canada, as a seedling of Belt. Perfect. Plants medium in number; fruit large, long wedge-shape, necked, bright scarlet; flesh light red, firm, briskly subacid; good; late midseason.

Orange County. 1. *N. Y. Sta. Bul.* **91**:193. 1895.

Originated by H. S. Timbrell, Unionville, New York. Imperfect. As grown here, plants vigorous, numerous, moderately productive; fruit-stems good; fruit medium to large, round-oblate, light red, soft, subacid; good; midseason.

Orange Prolific. 1. Downing *Fr. Trees Am.* 677. 1857.

Originated about 1847 by Ellwanger & Barry, Rochester, New York. Imperfect; Plants vigorous, very productive; fruit large, roundish oblate, necked, dark crimson; flesh firm, acid; late.

Oregon. 1. *Ore. Bien. Bd. Hort. Rpt.* 103. 1909–10. 2. *Ore. Bien. Crop Pest & Hort. Rpt.* 81. 1915. 3. *N. Y. Sta. Bul.* **447**:75. 1918.

Originated about 1898 near Salem, Oregon, with A. F. Hofstadtler, as a cross between Marshall and Jessie; introduced in 1902 as Admiral Dewey, but was soon changed to Oregon. Oregon is grown considerably in Washington, Oregon, and near San Francisco, California, where it is liked because of its productiveness and the large, attractive fruit. The name was added to the last catalog of the American Pomological Society in 1909. Perfect. On the Station grounds, plants numerous, of medium vigor, healthy, very productive; leaves small; flowers early, large; fruit-stems long, slender, erect; fruit large, retains size well, irregular in shape, averaging round conic, glossy medium to dark red, colors unevenly, juicy, firm, pleasantly sprightly, with red flesh; good; early.

Oregon Everbearing. 1. *N. Y. Sta. Bul.* **64**:9. 1894. 2. *Ore. Bien. Crop Pest & Hort. Rpt.* 81. 1915.

Everbearing. 3. *Wash. St. Bd. Hort. Rpt.* 147. 1893.

A chance seedling supposed to be of Triomphe originated in 1882 with Seth Winquist, Russellville, Oregon; introduced in 1890 as Everbearing. It is considered one of the best of the fall-fruiting sorts in Oregon. Semi-perfect to perfect. In the Station beds, plants lack vigor, few, healthy, variable in yield; autumn-fruiting; fruit-stems short; fruit of medium size, symmetrical, conic, glossy medium red, soft, subacid, well flavored; good to very good.

Oregon Ironclad. 1. *Md. Sta. Bul.* **160**:215. 1911. 2. *Ore. Bien. Crop Pest & Hort. Rpt.* 82. 1915.

Of unknown origin; introduced about 1911. Perfect. Plants few, medium in vigor and productivity; fruit of medium size, roundish, medium red; flesh light red, soft, mildly sweet; good; midseason.

Orem. 1. *N. Y. Sta. Bul.* **336**:61. 1911.

Introduced in 1908 by J. H. Arndt, Arlington, Maryland; supposed to be a cross between Bubach and Gandy. Perfect. Plants at this Station, numerous, medium in size and vigor, healthy, productive; leaves thick, dark green; flowers midseason, large; calyx large, flattened, leafy; fruit very large, retains size well, round-conic or wedge, glossy medium red, with a tendency to green tips and poorly developed apex, moderately juicy, firm, tart, with red flesh, often with a hard core; good; late.

Orewiler. 1. *Ohio Sta. Bul.* **85**:18. 1897. 2. *Mich. Sta. Bul.* **176**:9. 1899.

Originated with Henry Orewiler, Shelby, Ohio; introduced about 1896. Perfect. Plants vigorous, moderately productive; fruit medium to large, irregular conic, sometimes necked, light crimson; flesh medium firm; good; midseason.

Oriole. 1. *Am. Gard.* **17**:67, 226. 1896.

Originated in 1889 by J. W. Kerr, Denton, Maryland, as a a cross between Bubach and Hoffman. Imperfect. Plants medium in number; fruit of medium size, irregular round conic, dark crimson; flesh medium red, firm; good; early midseason.

Orphan. 1. *N. Y. Sta. Bul.* **336**:62. 1911.

A chance seedling found in 1904 by J. A. Morgan, Scottsville, New York. Imperfect. At this Station, plants medium in number and size, healthy, productive; fruit large, holds its size well, wedge or conic, dull medium to light red, colors unevenly, juicy, moderately firm, subacid, with well-colored flesh, inferior in flavor; poor; late.

Oscar. 1. *Ann. Hort.* 134. 1893. 2. *Mich. Sta. Bul.* **142**:154. 1897.

Originated with F. M. Kilbourne, Lakeville, Minnesota; introduced in 1893. An English sort of the same name was on trial in this country about 1860. Perfect. Plants vigorous, unproductive; fruit medium to large, irregular round-conic, crimson; flesh dark red, firm; good; late.

Oscar (of Hubach). 1. *Va. Sta. Tech. Bul.* **11**:74. 1916.

Originated by Louis Hubach, Judsonia, Arkansas; introduced in 1903. Perfect. Plants numerous; fruit below medium in size, conic, crimson; flesh dark red, medium firm; good; early.

Ossie. 1. Etter *Cat.* 23. 1920.

Originated in 1912 by Albert F. Etter, Ettersburg, California, as a seedling of Ettersburg No. 84. Perfect. Station plants very numerous, low growing, very dwarfish, healthy, productive; leaves small, dark green; flowers overtop the foliage; fruit above medium to small, drops in size, roundish, very light red; seeds much raised; flesh very juicy, firm, whitish toward the center, sweet; good; very late.

Oswego. 1. *N. Y. Sta. Bul.* **309**:539. 1908.

Introduced in 1906 by L. J. Farmer, Pulaski, New York. Said to be a cross between Bubach and Sharpless. It is inferior to other sorts. Perfect. As grown here, plants few, vigorous, healthy, very productive; fruit-stems very thick, prostrate; fruit large, drops quickly to small, round-conic to wedge, with furrowed surface, dark red, variable in firmness, mildly acid, with light red flesh; good; early midseason.

Oswego Queen. 1. *N. Y. Sta. Bul.* **147**:187. 1898.

Originated by M. Stevens, Pennellville, New York; introduced about 1898. Perfect. Plants numerous, vigorous, productive; fruit large, irregular conic, bright scarlet; flesh firm; good; late.

Otsego. 1. *Ann. Hort.* 134. 1893. 2. *Mich. Sta. Bul.* **142**:154. 1897.

Originated by J. M. Robinson, Otsego County, New York; introduced in 1893. Imperfect. Plants medium in number, vigor, and productivity; fruit of medium size, roundish, scarlet; flesh light red, medium firm; fair; midseason.

Outlander. 1. *N. Y. Sta. Bul.* **336**:62. 1911.

This is a seedling originated by A. T. Goldsborough, Washington, D. C., who introduced it in 1906. Perfect. On the Station grounds, a late-blooming and very late-ripening variety of good size, wedge to round-conic, glossy medium red, firm, sweet; very good.

Ozark. 1. *Va. Sta. Tech. Bul.* **11**:74. 1916.

Early Ozark. 2. *N. Y. Sta. Bul.* **336**:54. 1911.

Earliness makes Ozark a popular commercial variety in Missouri and neighboring states. It is sometimes but not often grown in New York. The berries are very good in quality and the crop is especially valued for canning. The plants are fairly satisfactory in most respects and they are particularly productive as plant makers. Ozark is a seedling of Aroma and Excelsior, originated in 1902 by Charles Shull, Sarcoxie, Missouri, who introduced it in 1908.

Perfect. Plants numerous, medium in vigor and height, healthy, very productive; leaves small, intermediate in thickness, color and glossiness, rugose, with reddish stems. Flowers early, large; petals 6–8; stamens numerous; receptacle large. Fruit very early; fruit-stems semi-erect; pedicels thick; calyx small, reflexed, depressed, well colored; sepals short; berries above medium to medium in size, round-conic; apex obtuse, indented; color glossy, attractive dark red; seeds sunken; flesh well colored to the center, very juicy, firm, subacid or pleasantly tart, highly flavored; very good in quality.

OZARK

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Pacific. 1. *Minn. Hort. Soc. Rpt.* 18. 1894. 2. *Va. Sta. Tech. Bul.* **11**:75. 1916.

Of southern origin, introduced about 1900. Imperfect. Plants vigorous, moderately productive; berries medium to large, irregular round-conic, crimson; flesh light red, firm, acid; good; early.

Page Seedling. 1. *Gen. Farmer* **20**:118. 1859.

Originated in Massachusetts; introduced about 1858. Berries medium in size, conic, dark crimson, soft; good; early.

Palmer. 1. *Am. Gard.* **24**:332. 1903.

Palmer's Earliest. 2. *Rural N. Y.* **61**:498. 1902.

Originated in 1897 with I. S. Palmer, Columbia, New York. Perfect. Plants moderately vigorous and productive; berries medium or below in size, conic, dull dark crimson, moderately firm, subacid; fair; early.

Pan American. 1. *Rural N. Y.* **62**:597. 1903. 2. *N. Y. Sta. Bul.* **276**:74. 1906.

This variety originated in 1898 with Samuel Cooper, Delevan, New York, as a sport of Bismarck. The variety is now of interest chiefly as the parent of the new race of double-bearing strawberries, nearly all of which are direct offspring of this one and all indirectly so. The variety fails in comparison with later sorts of its kind in being unproductive and difficult to propagate. Perfect. Plants very few, medium to vigorous, healthy, variable in yield; autumn-bearing; runners none or very few, the young plants usually blossoming as soon as rooted or sometimes before striking root; fruit-stems short, stout, erect; calyx small, deeply set; berries closely clustered and hidden by the foliage, medium in size, round-conic, dull red; flesh pale red, firm, aromatic, subacid; good; early.

Panic. 1. *W. N. Y. Hort. Soc. Rpt.* 26. 1881.

Originated with H. J. Peck, Brighton, New York; introduced about 1880. Perfect. Berries irregular long-conic, firm; fair; late.

Parcell. 1. *Va. Sta. Tech. Bul.* **11**:75. 1916.

Parcell's Early. 2. *N. Y. Sta. Bul.* **336**:62. 1911.

Supposed to be a cross between Haverland and Excelsior originated in 1903 by G. A. Parcell, Pine City, New York. Perfect. As grown here, plants medium in number, and vigor, healthy, productive; fruit above medium in size, conic, necked, glossy light red, juicy, firm, sprightly or tart; good; very early. Does better on a light rather than heavy soil.

Parcell Late. 1. *Ohio Sta. Bul.* **236**:230. 1912.

Originated by G. A. Parcell, Pine City, New York, who introduced it about 1912. Imperfect. Plants thrifty, productive; berries large, long wedge-shape, crimson to scarlet, tinged with greenish yellow; flesh scarlet, soft; fair; late.

Paris King. 1. *Mass. Sta. Bul.* **44**:23. 1897.

Originated by B. O. Curtis, Paris, Illinois, as a seedling of Captain Jack; introduced in 1891. Perfect. Plants fairly vigorous; berries large, conic, light crimson; flesh light red; good; midseason.

Paris Queen. 1. *N. Y. Sta. Bul.* **147**:187. 1898.

Originated by B. O. Curtis, Paris, Illinois; introduced about 1896. Perfect. Plants moderately vigorous and productive; berries medium to large, conical to wedge-shape, scarlet, soft; good; midseason.

Parker. 1. *Am. Pom. Soc. Rpt.* 209. 1922.

Originated about 1910 by Lucius Parker, as a cross between Bubach and Jessie. Imperfect. On the Station grounds, plants numerous, vigorous, tall, productive, healthy; leaves dark green; flowers midseason, small; fruit-stems short, thick, prostrate; pedicels short, thick; calyx large, sunken, detaches readily; fruit large, retains size well, irregular wedge, furrowed, glossy light red, juicy, very firm, subacid, with pale red flesh with hard center; inferior in quality; early to midseason.

Parker Earle. 1. *Rural N. Y.* **45**:461. 1886. 2. *U. S. D. A. Rpt.* 420. 1890. 3. *N. Y. Sta. Bul.* **36**:633. 1891.

Parker Earle Improved. 4. *Mich. Sta. Bul.* **189**:114, 116. 1901.

This variety now has little but historic value. It represents a somewhat distinct type in plant and fruit and was in its day one of the old standards so that it is here included among the major sorts. The variety was never a general favorite in New York, but was largely grown in several states of the Middle West. Its half-developed fruits are green; just before ripening they become dead white which rapidly turns to glossy red. The berries usually have the appearance of having been cut squarely off at the tip end. Parker Earle originated in 1886 with James Nimon, Denison, Texas, as a seedling of Crescent; introduced in 1889 by T. V. Munson of Denison; added to the recommended fruit list of the American Pomological Society in 1891.

Perfect. Plants medium to few, tall, vigorous, healthy, productive; leaves rather large, dull, rugose. Flowers midseason, medium to small; petals 5–7, smallish; stamens numerous; receptacle small. Fruit late midseason to late; fruit-stems short, prostrate; pedicels long, thick; calyx raised, reflexed, easily detached, well colored; sepals long, narrow; berries medium to large, conic, often truncate at the apex, although usually somewhat pointed; color glossy bright red; seeds raised; flesh light red, medium in firmness, juicy, mildly subacid; good to very good.

Parker Earle, Jr. 1. *Rural N. Y.* **56**:471. 1897.

Originated by James Nimon, Denison, Texas, as a seedling of Parker Earle; introduced about 1894. Identical with its parent except that the plants develop runners more freely and the berries ripen ten days earlier.

Parry. 1. *Rural N. Y.* **43**:400, 445, fig. 211. 1884. 2. *N. Y. Sta. Bul.* **24**:336. 1890.

Originated in 1880 by William Parry, Parry, New Jersey, as a seedling of Jersey Queen. Perfect. In the Station beds, plants numerous, medium in vigor, unproductive, severely injured by leaf-spot; fruit-stems medium in length, stiff; fruit large, obtuse-conic, glossy light red, soft, well flavored, whitish at the center; very good; midseason.

Parsons. 1. *U. S. D. A. Farmers' Bul.* **1043**:34. 1919.

Parsons' Beauty. 2. *Am. Gard.* **21**:630. 1900.

Reynolds. 3. *Ohio Sta. Bul.* **178**:59. 1906.

PARKER EARLE

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This variety originated as a chance seedling about 1890 with R. G. Parsons, Parsonsburg, Maryland; included in the catalog of the American Pomological Society in 1909. Parsons has been generally successful in New York and New England but does not now seem to hold its own with standard sorts. Perfect. Plants very numerous, vigorous, variable in height and health, very productive; fruit-stems of medium length, thick, semi-erect; fruit medium to large, uniform, blunt-conic to blunt-wedge, usually slightly necked, glossy medium red; flesh well colored to the center, juicy, firm, pleasantly sprightly; good; midseason.

Patagonia. 1. *N. Y. Sta. Bul.* **401**:187. 1915.

Originated by Luther Burbank, Santa Rosa, California, in 1907; obtained by crossing *Fragaria chiloensis* from South America with some of the best North American strains. Perfect. Plants at this Station, vigorous, productive, medium in number, injured by leaf-spot; fruit-stems long, thick, semi-erect; fruit large to medium, blunt-conic to blunt-wedge, dull dark red, colors unevenly, with green tips, very whitish at the center, firm, very sweet; good; late. Surpassed by other varieties.

Patrick. 1. *Rural N. Y.* **58**:530. 1899.

Originated by E. W. Cone, Menomonie, Wisconsin; introduced about 1896. Perfect. Plants moderately vigorous, productive; berries small, round to long-conic, light scarlet, medium firm; fair; early .

Patuxent. 1. *Mo. Sta. Bul.* **18**:7. 1892.

Originated by William Saunders, United States Department of Agriculture, Washington, D. C.; introduced in 1876. Perfect. Berries medium in size, conic, dark crimson, firm, subacid; very good; midseason.

Paul Jones. 1. *N. Y. Sta. Bul.* **336**:63. 1911.

A cross between Haverland and Brandywine, originated by William H. Johnson, Northboro, Massachusetts, about 1898. Imperfect. At this Station, plants numerous, above medium in size and vigor, healthy, very productive; fruit-stems medium in length and thickness, prostrate; fruit above medium in size, which is held up well, characteristically long-conic to wedge, dull light red, medium in juiciness and firmness, subacid, inferior in flavor; poor; midseason.

Pauline. 1. *Mag. Hort.* **28**:400. 1862.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Imperfect. Plants vigorous, hardy, productive; berries large, obovate, bright scarlet, acid; good; late.

Paulinus. 1. *U. S. Pat. Off. Rpt.* 198. 1861.

Originated by W. R. Prince, Flushing, New York; introduced about 1855. Imperfect. Berries medium in size, conic, light scarlet; good.

Pawnee. 1. *N. Y. Sta. Bul.* **64**:9. 1894.

Originated by James Stayman, Leavenworth, Kansas; introduced in 1892. Perfect. Station plants vigorous, slightly tender to the sun, numerous, productive; fruit-stems

good; fruit medium in size, round-conic, necked, dark red, soft, well flavored; very good; early to late.

Peabody. 1. *Mich. Sta. Bul.* 163:64, 70. 1898.

Grown by J. Little in Michigan about 1895. Perfect. Plants lacking vigor; berries small to medium, round-conic, light scarlet; flesh light red, soft; poor; midseason.

Peabody Seedling. 1. *Mag. Hort.* 22:416. 1856.

Peabody's New Hautbois. 2. Downing *Fr. Trees Am.* 684. 1857.

Originated with Charles A. Peabody, Columbus, Georgia; introduced in 1856. Perfect. Plants vigorous, productive; berries medium in size, irregularly conic, necked, dark crimson; flesh dark red, firm, sweet; good; early.

Peach. 1. *N. Y. Sta. Bul.* 401:187. 1915.

A chance seedling found in an abandoned peach orchard in 1888 by L. H. Girton, Bristol, Indiana. Perfect. As grown here, plants medium in number, large, vigorous, unproductive, attacked by mildew; fruit-stems long; fruit above medium to below in size; wedge to round-conic, glossy medium red, green tipped, juicy, firm, sprightly, well flavored, with red flesh, aromatic; very good; midseason.

Peak Emperor. 1. *Horticulturist* 24:276. 1869.

Originated with Ellwood Peak, South Bend, Indiana, as a cross between Hovey and Wilson; introduced in 1867. Imperfect. Plants strong, vigorous; berries large, conic, often necked, dark crimson, firm, mildly subacid; good; late.

Pearl. 1. *N. Y. Sta. Bul.* 447:75. 1918.

Originated by J. W. Loomis, Hobart, Indiana, as a seedling of Gandy; introduced in 1912. Perfect. On the Station grounds, plants numerous, large, healthy, productive; leaves large, thick; flowers very late, large; fruit-stems medium in length, very thick, erect; calyx large; seeds raised; berries very large, retain size well, necked, medium to light red, juicy, very firm, sprightly,with red flesh; good; very late. Worthy of trial for a sprightly, late variety of high quality.

Pearl (of New Jersey). 1. *Rural N. Y.* 47:710. 1888. 2. *Va. Sta. Tech. Bul.* 11:77. 1916.

Originated in New Jersey; introduced in 1889. Perfect to semi-perfect. Berries medium to large, round-conic to long-conic, crimson, firm, acid; very good; early.

Peckham. 1. *Va. Sta. Tech. Bul.* 11:77. 1916.

Peckham Wonder. 2. *N. Y. Sta. Bul.* 401:187. 1915.

Found in a meadow in 1907 by W. U. Peckham, Silver Springs, New York. Perfect. Plants at this Station, medium in number, vigor, and height, attacked by mildew, productive; fruit-stems thick, erect; fruit of medium size, long-conic to wedge, necked, dull dark red, colors unevenly, with green tips, firm, subacid, with red flesh, inferior in flavor; poor; midseason.

Peerless. 1. *Va. Sta. Tech. Bul.* 11:77. 1916. 2. Hedrick *Cyc. Hardy Fr.* 343. 1922.

Originated in 1910 as a cross between Cooper and Autumn by Samuel Cooper, who, with the R. M. Kellogg Company, Three Rivers, Michigan, introduced it in 1915. This

is one of the best of the autumn-bearing sorts; the plants are productive and the fruits are of handsome appearance and hold up well. Semi-perfect to perfect. Plants develop very few runners, medium in vigor and height, healthy, very productive; autumn-bearing; flowers cup-shaped, small, with leafy calyx; fruit-stems short, prostrate, much branched; berries large to medium, conic, glossy medium to dark red; seeds distinctly raised; flesh dark red throughout, medium juicy, very firm, mildly subacid; good; early.

Peerless (of Hubach). 1. *Ohio Sta. Bul.* **166**:78. 1905. 2. *Rural N. Y.* **66**:800. 1907.

Originated by Louis Hubach, Judsonia, Arkansas; introduced in 1904. Perfect. Plants vigorous, with numerous runners; berries large, round-conic, slightly necked, dark crimson; flesh dark red, firm; good; midseason.

Pennell. 1. *Am. Gard.* **20**:435, 590. 1899.

Originated as a chance seedling by John W. Pennell, West Norwalk, Connecticut; introduced in 1898. Perfect. Plants vigorous, productive; berries large, round-conic to oblong, sometimes necked, dark crimson; flesh dark red, firm, subacid; good; late.

Pennsylvania. 1. *Horticulturist* **8**:388. 1853.

Originated by Gerald Schmitz, Philadelphia, Pennsylvania, as a seedling of Moyamensing; introduced in 1853. Imperfect. Berries large, broadly conic, dark crimson; flesh dark red, firm, acid; good; midseason.

Pennsylvania Dutchman. 1. *Md. Sta. Bul.* **160**:204, 216. 1911.

Originated in York County, Pennsylvania; introduced by W. F. Allen, Salisbury, Maryland, in 1911. Perfect. Plants large, vigorous; berries medium to large, irregular round-conic, light crimson, firm, mildly subacid; fair; midseason.

Perfection. 1. *Mich. Sta. Bul.* **169**:148, 150. 1899.

Speece's Perfection. 2. *Ibid.* **80**:8. 1892.

Originated by B. W. Speece, Carthage, Missouri; introduced about 1886. Perfect. Plants productive; berries medium to large, round-conic, scarlet, moderately firm; good; midseason.

Perfection (of Kellogg). 1. Kellogg *Cat.* 19. 1920.

Originated in 1914 by E. H. Riehl, Alton, Illinois. Perfect to semi-perfect. Station plants very few, below medium in vigor and height, healthy, moderately productive; autumn-fruiting; fruit-stems short, medium thick, prostrate; calyx small; seeds sunken; fruit above medium to small, blunt-conic to blunt-wedge, dull medium red, juicy, medium firm, sprightly; poor; early.

Perfection (of Salzer). 1. *Mich. Sta. Bul.* **206**:54. 1903.

Introduced in 1892 by John A. Salzer, La Crosse, Wisconsin. Perfect. Plants hardy, vigorous, lacking in productiveness; berries small, conic, dark crimson; flesh dark red, acid; good; midseason.

Perfection (of Smith). 1. *Rural N. Y.* **50**:527. 1891.

Originated with Fred E. Smith, Hudson Center, New Hampshire; introduced about 1890. Perfect. Plants healthy, moderately productive; berries large, round-conic, light scarlet; flesh light red, soft; very good; midseason.

Perfection (of Sons). 1. *Va. Sta. Tech. Bul.* **11**:77. 1916.

Originated about 1900 with James Sons, Jr., Seligman, Missouri; introduced about 1904. Perfect. Berries medium in size, conic, light crimson, moderately firm; fair; midseason to late.

Perfumed Pine. 1. *Mag. Hort.* **25**:328. 1859.

A seedling of Burr originated by W. R. Prince, Flushing, New York; introduced about 1855. Perfect. Plants vigorous, very productive; berries large, obtuse-conic, bright scarlet, firm, sweet; good.

Perfumed Scarlet. 1. *Horticulturist* **8**:501. 1853.

Originated by W. R. Prince, Flushing, New York; introduced about 1855. Imperfect. Plants productive; berries medium in size, roundish, light scarlet; very good.

Perpetual. 1. *Va. Sta. Tech. Bul.* **11**:78. 1916.

Originated in 1909 by Charles F. Gardner, Osage, Iowa. Perfect. Autumn-fruiting. Berries medium in size, crimson, firm; good.

Perpetual (of Burbank). 1. *Am. Pom. Soc. Rpt.* 293. 1921.

Originated by Luther Burbank, Santa Rosa, California. Autumn-fruiting. Berries medium in size, oval, light crimson; good.

Perry Seedling. 1. Fuller *Sm. Fr. Cult.* 97, fig. 37. 1867.

Raised by George Perry & Sons, Georgetown, Connecticut; introduced about 1865. Perfect. Berries large, roundish, with slight neck, bright crimson, sweet; good.

Pet. 1. *Mich. Sta. Bul.* **163**:64, 70. 1898.

Originated as a chance seedling by Samuel Miller, Bluffton, Missouri; introduced about 1891. Perfect. Berries medium to large, round-conic, dark crimson, firm; very good; midseason.

Pewamo. 1. *Am. Pom. Soc. Rpt.* 169. 1920.

Originated by H. J. Schild, Ionia, Michigan. Perfect. Plants very productive; autumn-fruiting; berries large.

Phelps. 1. *Ia. Hort. Soc. Rpt.* 28. 1884.

Old Iron Clad. 2. *Gard. Mon.* **26**:46. 1884.

Ironclad. 3. *Colo. Sta. Bul.* **53**:17. 1900.

Originated in southern Illinois; introduced in 1883; included in the American Pomological Society's fruit catalog from 1883 to 1897. Perfect. Plants at this Station, very vigorous, numerous, healthy, productive; fruit-stems short, slender; fruit medium to small, conic, glossy red, firm, with dark red flesh; good; midseason.

Phenomenal. 1. *Va. Sta. Tech. Bul.* **11**:78. 1916.

Originated at Orlando, Florida, as a seedling of Hoffman; introduced about 1895. Perfect. Berries medium to large, conic, dark crimson, firm; good; early.

Phil Krates. 1. *Va. Sta. Tech. Bul.* **11**:78. 1916.

Originated by A. T. Goldsborough, Washington, D. C., from English sorts; introduced in 1908. Perfect. Berries medium in size, round-conic, light scarlet, moderately firm, sweet; midseason.

Phil Sheridan. 1. *Mag. Hort.* **32**:273. 1866.

General Sheridan. 2. *Horticulturist* **22**:254. 1867.

Originated with J. Keech, Waterloo, New York, as a cross between Russell and Triomphe; introduced in 1866. Imperfect. Berries medium to large, irregular, dark crimson, firm; good; midseason.

Philadelphia Beauty. 1. *Moore Seed Cat.* 68. 1923.

Introduced about 1922 by the Moore Seed Company, Philadelphia, Pennsylvania. Perfect. Plants strong, healthy; berries very large, conic, bright red, firm, good; midseason.

Phillips. 1. *Mich. Sta. Bul.* **142**:151, 156. 1897.

Phillips' Seedling. 2. *N. Y. Sta. Bul.* **36**:634. 1891.

A cross between Sharpless and Crescent, originated by W. H. Phillips, Staunton, Indiana; introduced in 1892. Perfect. As grown here, plants very vigorous, medium in number, very productive; fruit-stems stout but unable to hold up the large fruits; fruit very large, Sharpless in shape, glossy red, firm, subacid, well flavored; good; midseason.

Phipen. 1. *Mich. Sta. Bul.* **169**:148. 1899.

Introduced about 1896. Perfect. Berries small to medium, long-conic, bright scarlet; flesh light red, firm, acid; fair; midseason.

Phœnix. 1. *N. Y. Sta. Bul.* **401**:187. 1915.

A seedling of unknown parentage originated in 1906 by Charles L. Granby, Naples, New York, who introduced it in 1910. Semi-perfect. On the Station grounds, plants large, vigorous, productive, healthy; leaves large, dark green; flowers late; fruit-stems long, medium thick, semi-erect; calyx attractive green; seeds raised; fruit very large, irregular in shape, with furrowed surface, often coxcomb, glossy medium red, green tipped, not very juicy, sweet, whitish at the center, well flavored; very good; midseason. Worthy of test on account of high quality.

Phœnix (of Arizona). 1. *Mich. Sta. Bul.* **189**:114. 1901.

Originated in Arizona; introduced about 1898. Perfect. Berries medium in size, round-conic, dark scarlet, moderately firm; fair; a double-cropper in Arizona; midseason elsewhere.

Photo. 1. *Rural N. Y.* **42**:146. 1883. 2. *Col. O. Hort. Soc. Rpt.* 119. 1887.

Originated in 1871 by Matthew Crawford, Cuyahoga Falls, Ohio; introduced in 1876. Imperfect. Plants vigorous, unproductive; berries large to very large, roundish to long-conic, bright crimson; flesh light red, very soft, mildly subacid; good; late.

Pickerproof. 1. *Va. Sta. Tech. Bul.* **11**:78. 1916.

Originated by R. L. Cloud, Independence, Iowa, as a seedling of Hoffman; introduced about 1898.

Pierson Seedling. 1. *N. J. Hort. Soc. Rpt.* 100. 1899.

Originated with A. W. Pierson, Vineland, New Jersey; introduced about 1896. Perfect. Berries large, round-conic, scarlet, firm; late.

Pilgrim. 1. *Rural N. Y.* **58**:514. 1899.

Sent out by A. Diamond, Rochester, New York, in 1899. Perfect. Plants moderately vigorous and productive; berries large, broad-ovate, dark crimson, mild; good; early.

Pine Hill. 1. *Rural N. Y.* **53**:437. 1894.

Originated by C. G. Bushnell, Centerbrook, Connecticut; introduced in 1892. Imperfect. Berries medium in size, round-conic, scarlet; flesh whitish, moderately firm; good; midseason.

Pineapple. 1. *Md. Sta. Bul.* **160**:204, 216. 1911.

Pineapple Flavored. 2. *N. Y. Sta. Bul.* **309**:540. 1908.

A chance seedling originated by a Mr. Talmage, Mt. Morris, New York, about 1896; introduced by Green's Nursery Company, Rochester, New York. Perfect. In the Station beds, plants very numerous, vigorous, above medium in yield; fruit-stems long, medium thick, prostrate; fruit above medium to small, round-conic, glossy medium to dark red, very firm, with medium acidity, well flavored; fair to good; early to midseason.

Pioneer. 1. *N. J. Hort. Soc. Rpt.* 7. 1878.

King of the North. 2. *Can. Cent. Exp. Farm Bul.* **5**:16. 1889.

Originated about 1868 by E. W. Durand, Irvington, New Jersey. Perfect. Plants vigorous, very productive; berries large, round-conic to oval, with a slight neck, bright scarlet; flesh light red, moderately firm, sweet; good; early.

Piper. 1. *Gard. Mon.* **26**:46. 1884.

Piper's Seedling. 2. *Rural N. Y.* **42**:456. 1883. 3. *N. Y. Sta. Bul.* **24**:336. 1890.

Originated as a chance seedling in 1873 with D. J. Piper, Forreston, Illinois. Perfect. At this Station, plants very vigorous, numerous, healthy, productive, fruit-stems short; fruit medium to large, conic, deep dark red, firm, well flavored; very good; midseason.

Pitchers Overland. 1. *Am. Pom. Soc. Rpt.* 169. 1920.

Introduced by the Arctic Nursery and Fruit Farm, Buchanan, Michigan. Perfect. Plants vigorous; berries large, round, dark red, firm; good.

Pittsville. 1. *Am. Pom. Soc. Rpt.* 169. 1920.

Originated by L. G. Tingle, Pittsville, Maryland, as a seedling of Parsons; introduced by Tingle's Small Fruit Company, of that place, in 1916. Plants vigorous; fruit resembles Dunlap but lighter in color; midseason.

Plow City. 1. *Am. Gard.* **17**:517. 1896. 2. *N. Y. Sta. Bul.* **147**:187. 1898.

Originated in 1884 by C. C. Stone, Moline, Illinois, possibly as a seedling of Atlantic; introduced in 1894. Perfect. Station plants vigorous, moderately productive; berries large, irregular round-conic, dark scarlet, firm; good; midseason.

Plumb Bob. 1. *Va. Sta. Tech. Bul.* **11**:79. 1916.

Originated in 1902 by H. J. Schild, Ionia, Michigan, as a cross between Haverland and Ionia. Imperfect. Berries large, conic, light crimson; flesh whitish, firm, acid; midseason to late.

Plymouth Rock. 1. *Va. Sta. Tech. Bul.* **11**:79. 1916.

Originated in Massachusetts; included in a list of varieties growing at the Massachusetts Agricultural Experiment Station in 1900. Berries medium in size, roundish, crimson; flesh light red, firm, sweet; good; midseason.

Pocahontas. 1. *Md. Sta. Bul.* **160**:204, 216. 1911.

A chance seedling originated with S. K. Garrison, of Virginia; introduced in 1908. Perfect. Plants moderately vigorous and productive; berries medium, round-conic, slightly necked, dark scarlet; flesh light red, moderately firm, mildly subacid; fair; midseason.

Pocomoke. 1. *Ohio Sta. Bul.* **154**:54. 1904. 2. *U. S. D. A. Farmers' Bul.* **1043**:34. 1919.

Gibson. 3. *N. Y. Sta. Bul.* **447**:70. 1918.

This variety is occasionally found in strawberry plantations in western New York, but is more generally grown in Michigan and in the Middle West. Its outstanding characters are hardy and productive plants and large, handsome berries which are firm enough to keep well and reach markets in good condition. Many growers believe that there are two if not three varieties under this name. Gibson and Parsons are very similar if not identical. Almost without question Gibson is Pocomoke, and we have listed it as a synonym, a procedure which many growers will dispute. The variety originated with E. H. Hamblin, Pittsville, Maryland, as a chance seedling; introduced about 1902. A variety introduced from Michigan in 1911 under the name Gibson, has proved identical with Pocomoke.

Perfect. Plants numerous, vigorous, healthy, productive; leaves dark green, dull, somewhat rugose. Flowers early, large; petals 7–9, large, crinkly; stamens numerous; receptacle large. Fruit midseason; fruit-stems thick, semi-erect; pedicels long; calyx large, raised, leafy; sepals broad; berries above medium in size, round-conic to long-conic, necked; apex usually pointed but variable; color attractive, glossy red; seeds raised; flesh red throughout, juicy, very firm, tart or sprightly; fair in quality.

Pokagon. 1. *Am. Pom. Soc. Rpt.* 169. 1920.

Originated in 1914 as a seedling of Goldsborough by A. J. Schild, Ionia, Michigan; introduced in 1916. Perfect. Station plants numerous, vigorous, healthy, productive; leaves large; fruit-stems long, thick, erect, much branched; calyx large, leafy, flat or depressed; seeds raised; fruit very large to medium, retains size well, irregular wedge, often coxcomb, much furrowed, glossy medium red, very juicy, very firm, with a hard center, subacid, inferior in flavor; poor. The large size is the greatest asset of this variety.

Polly Warfield. 1. *Mich. Sta. Bul.* **177**:20, 22. 1899.

Originated with W. W. Sewall, Carthage, Missouri; introduced about 1897. Imperfect. Plants thrifty; berries round-conic, light scarlet, firm; good; midseason.

Pomona. 1. *Va. Sta. Tech. Bul.* **11**:79. 1916.

Originated with B. Hathaway, Little Prairie Ronde, Michigan; introduced about 1884. Perfect. Berries medium in size, round-conic, scarlet; flesh light red, firm, mildly subacid; fair; early.

Ponderosa. 1. *Mich. Sta. Bul.* **176**:6, 10. 1899.

Introduced in 1895 by John A. Salzer, La Crosse, Wisconsin. Perfect. Plants vigorous; berries large, irregular round-conic, dark crimson; flesh dark red, firm, mildly subacid; good; midseason.

Pontiac. 1. *Am. Pom. Soc. Rpt.* 169. 1920.

Originated by H. J. Schild, Ionia, Michigan, as an "Indian strain of everbearing strawberry." Imperfect. Plants very productive; berries large.

Portage. 1. *Ohio Sta. Bul.* **85**:18. 1897.

Originated with M. C. Hall, Freedom, Ohio; introduced about 1894. Perfect. Berries large, long-conic to coxcomb, bright scarlet, firm; fair; late.

Porter. 1. *Mich. Hort. Soc. Rpt.* 311. 1891.

Porter's Seedling. 2. *Va. Sta. Tech. Bul.* **11**:79. 1916.

Originated with a Mr. Porter, Rocky Point, North Carolina; introduced in 1890. Perfect. Berries medium in size, round-conic, light crimson, soft; fair; very early.

Portia. 1. *Can. Exp. Farms Rpt.* 299. 1913.

Originated in 1906 at the Central Experimental Farm, Ottawa, Canada, as a seedling of Belt. Imperfect. As grown here, plants medium to numerous, vigorous, moderately productive, healthy; fruit-stems short, thick, prostrate, bearing the fruit close to the ground; seeds raised; fruit above medium to small, drops in size, round-conic, with very obtuse apex, glossy medium red, juicy, firm, subacid, with red flesh; good; midseason.

Porto Rico. 1. *Am. Gard.* **19**:608, 684. 1898.

A cross between Haverland and Parker Earle originated in 1895 by E. W. Wooster, Hancock Point, Maine. Imperfect to semi-perfect. Plants vigorous; berries medium to large, round-conic, bright crimson; flesh light red, moderately firm, mildly subacid; fair; late.

Posey. 1. *N. Y. Sta. Bul.* **401**:188. 1915.

Originated as a chance seedling in 1910 by Oral Herron, Brazil, Indiana. Perfect. On the Station grounds, plants very numerous and vigorous, productive; attacked by leaf-spot; leaves large, light green; flowers late, large; fruit-stems long, semi-erect; calyx very large, raised, leafy; seeds large, raised; fruit large, long-wedge, necked, glossy medium to dark red, often green tipped, juicy, firm, subacid, with red flesh; fair; midseason. Not of highest quality but exceedingly attractive in appearance. May have value where appearance is of more value than quality.

Prairie Farmer. 1. *Horticulturist* **24**:273. 1869.

Originated with William D. Neff, Ottawa, Illinois; introduced in 1869. Perfect. Plants vigorous; berries large, irregular obovate, dark scarlet, firm, subacid; good; midseason.

Prairie Queen. 1. *Mich. Hort. Soc. Rpt.* 168. 1882.

Listed in Michigan in 1882. Perfect. Plants vigorous, unproductive; berries medium in size, round-conic, dull crimson, soft, subacid; fair.

POCOMOKE

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Premium. 1. *N. Y. Sta. Bul.* **147**:188. 1898.

Originated about 1886 as a seedling of Jersey Queen. Imperfect. Station plants unproductive; berries medium to large, roundish, dark crimson, firm; good.

President. 1. *N. Y. Sta. Bul.* **309**:540. 1908.

Originated about 1900 by M. R. Hunt, Lambertville, New Jersey. Imperfect. In the Station beds, plants medium to numerous, vigorous, sometimes attacked by leaf-spot, productive; leaves large, dark green; fruit-stems long, stout, prostrate; calyx large, leafy; seeds sunken; fruit of largest size, which is well retained, round-conic, slightly furrowed, glossy bright red, firm, moderately juicy, subacid; fair to good; midseason. One of the most promising varieties where good size and color are prime requisites.

President Harding. 1. *Am. Pom. Soc. Rpt.* 293. 1921.

Originated in 1915 as a chance seedling with George Williams, Wicomico County, Maryland. Perfect. Plants at this Station, medium to numerous, intermediate in vigor and height, usually healthy, very productive; fruit-stems short, medium thick, prostrate; seeds raised; fruit medium to small, chunky conic, dull dark red, seedy in appearance, juicy, very firm, sprightly; good; midseason to late.

President Harrison. 1. *Rural N. Y.* **50**:527. 1891.

Introduced about 1890. Perfect. Plants unproductive; berries small, irregular, scarlet, firm; good; midseason.

President Lincoln. 1. *Va. Sta. Tech. Bul.* **11**:80. 1916.

Raised in 1875 by a Mr. Smith, gardener to Charles Dickens, New York City. Perfect. Berries large, irregularly round-conic, often necked, light crimson; flesh light red, moderately firm, sweet; good; midseason.

President Roosevelt. 1. *N. Y. Sta. Bul.* **309**:541. 1908.

Roosevelt. 2. *Va. Sta. Tech. Bul.* **11**:85. 1916.

A seedling of Warfield by Clyde, originated by A. Y. Cathcoit, Bristol, Indiana. Imperfect. At this Station, plants few, vigorous, slightly injured by leaf-spot, below medium in yield; fruit-stems slender, prostrate, much branched; calyx often raised on a long neck, detaches easily; fruit above medium to small, irregular in shape, strongly necked, with furrowed surface, glossy medium to dark red, moderately firm, pleasantly acid, well flavored; good; early.

President Wilder. 1. *Gard. Mon.* **10**:310. 1868. 2. *Mich. Hort. Soc. Rpt.* 181. 1875.

A cross between Hovey and La Constante, raised by Marshall P. Wilder, Dorchester, Massachusetts, in 1861; included in the list of fruits recommended by the American Pomological Society from 1869 to 1897. For many years the variety was valued by amateurs for its high quality. Perfect. Plants hardy, vigorous, very productive; berries large, round-conic to oval-conic, obtuse, light scarlet; flesh rosy white, firm, sweet; very good to best; midseason.

Price. 1. *Del. Sta. Bul.* **24**:9. 1894.

Price's Seedling. 2. *Va. Sta. Tech. Bul.* **11**:80. 1916.

Originated with Caleb Price, Mt. Olive, North Carolina; introduced in 1892. Perfect.

Plants unproductive; berries medium in size, long-conic, necked, light crimson, moderately firm; very good; early.

Pride. 1. *Am. Pom. Soc. Rpt.* 169. 1920.

Introduced by the Capital City Nurseries, Des Moines, Iowa. Perfect. Plants vigorous, healthy; berries large, oblong, dark red; good.

Pride of Albany. 1. *Mich. Hort. Soc. Rpt.* 311. 1891.

Originated by D. W. H. Taylor, Brodhead, Wisconsin; introduced about 1890. Perfect. Plants moderately vigorous; berries medium in size, round-conic, dark crimson, soft; good; late.

Pride of Cumberland. 1. *N. J. Hort. Soc. Rpt.* 157. 1896. 2. *N. Y. Sta. Bul.* **147**:188. 1898.

A seedling of Gandy, originated about 1890 by W. S. Gandy, Newport, Cumberland County, New Jersey. Perfect. Plants numerous, moderately vigorous, unproductive; fruit medium to large, round-conic, bright scarlet; flesh light red, firm, sweet; good; late midseason.

Pride of Michigan. 1. *Ind. Sta. Bul.* **164**:782. 1913.

Originated as a chance seedling with Peter Weinheimer, Bridgman, Michigan, about 1900. Perfect. Plants moderately vigorous, and productive; berries large oblong to roundish conic, dark red, firm, mildly subacid; good; medium early.

Pride of Ohio. 1. *Ohio Sta. Bul.* **98**:71. 1899.

Originated with W. H. Earheart, Lexington, Ohio; introduced about 1898. Perfect. Plants moderately vigorous and productive; berries medium in size, round-conic, dark scarlet, firm; good; midseason.

Primate (I). 1. *Horticulturist* **3**:70. 1848–49.

A seedling of Prince Albert, an English variety, raised about 1845 by W. R. Prince, Flushing, New York. Perfect. Plants vigorous, very productive; berries large, conic, dark scarlet firm; good.

Primate (II). 1. *N. Y. Sta. Bul.* **64**:10. 1894.

Introduced by James Stayman, Leavenworth, Kansas, about 1892. Perfect. Station plants vigorous, healthy, medium in number, productive; fruit-stems good; fruit medium to large, long-conic, dark crimson; flesh dark red, soft; good; midseason.

Primo. 1. *Gard. Mon.* **23**:50, 240. 1881. 2. *N. Y. Sta. Bul.* **24**:336. 1890.

Originated about 1878 by Daniel Smith, Newburgh, New York. Perfect. As grown here, plants vigorous, very numerous, with slight leaf-spot, productive; fruit-stems short; fruit of medium size, obtuse-conic, glossy light red, firm, subacid, variable in flavor; good; late.

Primoridan. 1. *Cultivator* **3**:348. 1846.

Raised about 1845 by W. R. Prince, Flushing, New York, as a seedling of Crimson Cone. Imperfect. Plants vigorous, productive; berries large, long-conic, dark scarlet, sweet; good; early.

Prince. 1. Townsend *Cir.* 1925.

Originated about 1918 with George Lawson, Somerset County, Maryland. Perfect. Berries large, dark red throughout, firm; good; early.

Prince Albert. 1. Bridgeman *Gard. Ass't* **Pt. III:**139. 1857. 2. Downing *Fr. Trees Am.* 999. 1869.

Of English origin early in the nineteenth century. Perfect. Berries large, oblong-conic, deep scarlet, firm, sweet; good; late.

Prince of Berries. 1. *Rural N. Y.* **43:**495. 1884. 2. *N. Y. Sta. Bul.* **24:**336. 1890. *Prince.* 3. *Rural N. Y.* **48:**521. 1889.

A seedling of Jersey Queen, originated by E. W. Durand, Irvington, New Jersey; introduced about 1881. Perfect. On the Station grounds, plants vigorous, few, healthy, unproductive; fruit-stems short, stiff; fruit of medium size, roundish truncate, rich dark red, firm, sweet, very well flavored; very good to best; late.

Princeps. 1. *Mag. Hort.* **28:**400. 1862.

Originated by W. R. Prince, Flushing, New York; introduced about 1855. Plants vigorous, productive; berries very large, long-conic, dark crimson, soft; good.

Princess Ena. 1. *Va. Sta. Tech. Bul.* **11:**81. 1916.

Originated about 1905 with A. T. Goldsborough, Washington, D. C., as a cross between English and American varieties. Imperfect. Berries round-conic, dark crimson; flesh dark red, sweet; very good; midseason.

Princeton Chief. 1. *Ann. Hort.* 202. 1892. 2. *N. Y. Sta. Bul.* **64:**9. 1894.

Originated in 1884 with F. W. Poscharsky & Son, Princeton, Illinois, as a cross between Crescent and Kentucky. Imperfect. Plants at this Station, numerous, vigorous, healthy, productive; fruit-stems long; fruit of medium size, irregular conic, glossy medium to dark red, moderately firm, acid; good; midseason to late.

Productive. 1. *N. Y. Sta. Bul.* **401:**188. 1915.

A cross between Pan American and Autumn raised by Samuel Cooper, Delevan, New York, in 1908. Imperfect. At this Station, plants very few, vigorous, productive, healthy; leaves unusually dark green; fruit-stems long, slender, prostrate, the fruit being densely clustered about the plant; fruit above medium to small, blunt-wedge to blunt-conic, broad at the base, glossy medium red, with green tips, juicy, firm, subacid, inferior in flavor; poor; midseason.

Professor. 1. *Am. Gard.* **21:**469. 1900.

Originated about 1898 with a Mr. Warner, Port Jervis, New Jersey. Berries round-conic, crimson; very good.

Profit. 1. *Rural N. Y.* **53:**437. 1894.

Originated about 1890 with Finney Brothers, West Hanover, Massachusetts. Perfect. Berries medium in size, round-conic, scarlet, firm, acid.

Profuse Scarlet. 1. *Horticulturist* 3:69. 1848–59.

Originated by W. R. Prince, Flushing, New York, as a seedling of Large Early Scarlet; introduced about 1849. Imperfect. Berries small to medium, roundish oval, light scarlet, soft; very early.

Profusion. 1. *Mag. Hort.* 13:368. 1847.

Originated about 1845 by John Burr, Columbus, Ohio. Imperfect. Berries small to medium, sweet; very good.

Progressive. 1. *Ia. Hort. Soc. Rpt.* 187. 1912. 2. *N. Y. Sta. Bul.* 401:188. 1915. 3. *U. S. D. A. Farmers' Bul.* 901:18. 1922. *Rockhill No. 16.* 4. *Ia. Hort. Soc. Rpt.* 120. 1911.

Of the score or more everbearing strawberries introduced in recent years, Progressive is now probably the best known. It is a favorite because of the hardiness, healthiness and productiveness of the plants and the handsome, well-flavored fruits. The plants produce a crop in the spring as well as in the fall. Progressive seems to do well only in northern climates and, as with all the double-cropping varieties, is often very capricious in bearing habits. This is a cross between Dunlap and Pan American, which originated with Harlow Rockhill, Conrad, Iowa, in 1908; placed on the market in 1912.

Perfect. Plants medium to numerous, vigorous, healthy, productive; autumn-bearing; leaves dark green, thick, smooth, glossy. Flowers early, medium in size; petals 5–6; receptacle small. Fruit early; fruit-stems thick, much branched; pedicels long, slender; calyx flat, reflexed, often with a pinkish tinge; sepals narrow; berries vary considerably in size from large to small, blunt-wedge to blunt-conic; apex obtuse; color glossy dark red; seeds raised; flesh well colored throughout, firm, subacid, mild; quality good.

Prolific. 1. *N. Y. Sta. Bul.* 309:542. 1908. 2. *Ibid.* 364:194, Pl. 1913.

This variety was originated on the grounds of the New York Agricultural Experiment Station and so has been under the eyes of the authors of this text for several years. It would rank among the very best strawberries were it not for susceptibility to leaf-spot which takes too great toll in most localities. The plants are very vigorous and productive, and the fruits are large, handsome and well flavored. For those who can control leaf-spot by spraying, and for home gardens, Prolific is a most valuable strawberry. It originated on the grounds of this Station in 1899 as a cross between Sample and Marshall; introduced in 1908.

Perfect. Plants numerous, tall, vigorous, susceptible to leaf-spot, very productive; leaves large, dark green, thick. Flowers midseason, medium to large; petals 6–8, large; stamens numerous. Fruit midseason, ripening period long, picks easily; fruit-stems stout, semi-erect; pedicels intermediate in length and thickness; calyx depressed, variable in color; sepals short, broad; berries large, retain size well throughout the season, round-conic to wedge-conic; apex obtuse; color handsome, glossy bright red; seeds raised; flesh well colored throughout, firm, juicy, pleasantly acid, aromatic; quality good.

Prolific (of Miller). 1. *Va. Sta. Tech. Bul.* 11:81. 1916.

A seedling of Bubach originated by J. B. Miller, Anna, Illinois; introduced about 1893. Perfect. Berries large, roundish, firm, sweet; good: medium early.

PROGRESSIVE

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Prolific Hudson. 1. *Horticulturist* 3:70. 1848–49.

Originated about 1845 with W. R. Prince, Flushing, New York. Imperfect. Berries medium in size, round-conic, crimson; good.

Prosperity. 1. *Va. Sta. Tech. Bul.* 11:82. 1916.

Listed in 1902. Berries large, round-conic, dark crimson; flesh light red, soft, subacid; very good; early to midseason.

Prosser. 1. *Va. Sta. Tech. Bul.* 11:82. 1916.

Originated about 1900 by C. A. Warner, Prosser, Washington, as a cross between Brandywine and Clark. Berries medium in size, firm.

Prouty. 1. *Mich. Hort. Soc. Rpt.* 358. 1880.

Prouty's Seedling. 2. *Mass. Hort. Soc. Rpt.* 171. 1878.

Originated in 1870 by K. Prouty, as a cross between Wilson and Russell. Perfect. Berries medium in size, irregular long-conic, light crimson; flesh light red, firm, acid; fair; early.

Providence. 1. *Va. Sta. Tech. Bul.* 11:82. 1916.

Originated in 1909 as a chance seedling with William Carroll, Somerset County, Maryland. Perfect. Berries large, dark crimson; flesh dark red, firm; early.

Purdue. 1. *Ind. Sta. Bul.* 55:14. 1895.

Originated at the Indiana Agricultural Experiment Station in 1890 as a cross between Bubach and Jessie. Imperfect. Plants vigorous, productive; berries large, round-conic, dull scarlet; flesh dark red, moderately firm, acid; good; midseason.

Puritan. 1. *Colo. Sta. Bul.* 53:22. 1900.

Of Ohio origin, introduced about 1890. Imperfect to semi-perfect. Berries medium in size, irregular conic, dark crimson, moderately firm, acid; good; midseason.

Pyramidal Chilian. 1. Thomas *Am. Fruit Cult.* 419. 1867.

Originated with a Mr. Newland of New Jersey, prior to 1840; probably a seedling of *Fragaria chiloensis*. Perfect. Berries large, conic, dark scarlet, moderately firm, subacid; good; late.

Quality. 1. *N. Y. Sta. Bul.* 298:54. 1908. 2. *Ibid.* 309:542. 1908.

Originated at this Station in 1899 as a cross between Hunn and Atlantic. The variety varies greatly in sex, plant, and fruit characters, and has not held up to its earlier promises. Semi-perfect. Plants at this Station, numerous, medium to productive, attacked by leaf-spot, moderately vigorous; leaves dark green; fruit-stems variable in length, semi-erect; calyx medium to large, leafy, variable in position; fruit above medium to very large, not uniform in shape, necked, glossy light to dark red, firm, mildly acid, with red flesh, well flavored; good to very good; late.

Quality (of Ohio). 1. *Mich. Sta. Bul.* 163:70. 1898.

Originated in Ohio; introduced in 1896. Plants few; fruit large, round-conic, bright crimson; flesh medium firm, mildly subacid; very good; midseason.

Random. 1. *N. Y. Sta. Bul.* **76**:436. 1894.

Received at this Station in 1893 from G. W. Cline, Winona, Ontario. Perfect. As grown here, plants vigorous, healthy, very numerous, unproductive; fruit-stems good; fruit of medium size, light red, moderately firm; good.

Rear Guard. 1. *N. H. Sta. Bul.* **137**:184. 1908.

Of southern origin; introduced about 1906. Imperfect. Plants dwarfish, productive; fruit medium to large, conic, light red; flesh medium firm, juicy, acid; fair; late midseason.

Reba. 1. *Rural N. Y.* **55**:514. 1896. 2. *N. Y. Sta. Bul.* **218**:200. 1902.

Raised by J. H. Black & Son, Hightstown, New Jersey, in 1893, as a cross between a seedling of Bubach and Charles Downing, and Gandy. Imperfect. On the Station grounds, plants vigorous, medium in number, healthy, unproductive; fruit above medium to large, blunt-wedge, glossy red, soft, juicy; fair; medium late.

Red Bird. 1. *N. Y. Sta. Bul.* **336**:63. 1911.

Originated in 1902 by Samuel Wherry & Son, Durant, Mississippi, as a cross between Murray and Hoffman. Imperfect. In the Station beds, plants medium in number and size, healthy, unproductive; fruit large to above medium, round-conic or wedge, necked, glossy light red, not very juicy, tender, sprightly, well flavored; good to very good; early.

Red Cross. 1. Etter *Cat.* 33. 1920.

Originated by Albert F. Etter, Ettersburg, California, as a cross between Ettersburg No. 216 and Trebla. Plants medium in vigor, very productive; fruit round, bright red; flesh firm, mild, sweet; early.

Red Jacket. 1. *Ia. Hort. Soc. Rpt.* 203. 1876.

Originated in 1869 by C. P. Hunt, Waterloo, Iowa, as a supposed cross between Wilson and Russell. Perfect. Plants numerous; fruit large, round-conic, dark crimson; flesh soft, acid; poor; very early.

Red Prolific. 1. *N. Y. Sta. Bul.* **401**:188. 1915.

A cross between Ionia and Crescent raised by H. J. Schild, Ionia, Michigan, in 1899. Imperfect. Plants at this Station, numerous, below medium in vigor and height, productive, healthy; fruit-stems medium thick, rather short, very brittle; fruit large to above medium, conic, glossy light red, tart, with red flesh; fair; early.

Regina. 1. *Ann. Hort.* 134. 1893. 2. *Mich. Sta. Bul.* **104**:68. 1894.

Originated by Julius Schnadelbach, Grand Bay, Alabama; introduced about 1890. Imperfect. Plants vigorous, unproductive; fruit medium in size, round-conic, crimson; flesh medium firm; fair; late.

Reliance. 1. *Md. Sta. Bul.* **124**:189. 1907.

Originated by Charles W. Momm, Irvington, New Jersey, as a cross between Mary and Marshall; introduced about 1905. Perfect. Plants few, weak, unproductive; fruit of medium size, round-conic, bright scarlet; flesh bright red, soft, not juicy, acid; fair; early.

Remington. 1. *Va. Sta. Tech. Bul.* 11:83. 1916.

Originated in Colorado. Grown extensively near Steamboat Springs, Colorado. Perfect. Fruit of medium size, irregular, crimson, very firm, mildly subacid; very good; late midseason.

Rena. 1. Etter *Cat.* 28. 1920.

Raised by Albert F. Etter, Ettersburg, California, as a supposed cross between the wild beach strawberry of California and Ettersburg No. 84; introduced in 1920. Imperfect. At this Station, plants intermediate in number and vigor, somewhat low growing, unproductive, with slight leaf-spot; calyx cup-shaped; fruit-stems very short, slender, erect; fruit small, roundish, glossy pinkish white, moderately firm, juicy, with distinctly whitish flesh, sweet; fair; very late.

Repeater. 1. *Mich. Sta. Bul.* 189:116. 1901. 2. *N. Y. Sta. Bul.* 401:189. 1915.

Origin not known; introduced about 1900. Perfect. Station plants numerous, small, low growing, productive, healthy; fruit-stems medium in length, variable in thickness; fruit above medium in size, blunt-wedge, glossy red, juicy, firm, sweet, well flavored, whitish at the center; fair; early.

Rewastico. 1. *Peninsula Hort. Soc. Rpt.* 54. 1914. 2. *N. Y. Sta. Bul.* 447:76. 1918.

A chance seedling which originated with Thomas B. Howard, Wicomico County, Maryland, about 1908. Perfect. As grown here, plants unusually numerous, vigorous, healthy, very productive; flowers large, showy, scattered thickly among the dark green leaves; fruit-stems long, very thick, erect; calyx leafy, with very broad sepals; fruit large, blunt-wedge to round-conic, necked, glossy medium red, very juicy, firm, tart, inferior in flavor, with red flesh; poor; late.

Richardson Early. 1. *Mag. Hort.* 17:59. 1851. 2. Downing *Fr. Trees Am.* 682. 1857.

Originated by J. Richardson, Cambridge, Massachusetts; introduced in 1848. Imperfect. Plants unproductive; fruit of medium size, conic, dark crimson; good; early.

Richardson Late. 1. *Mag. Hort.* 17:59. 1851. 2. Downing *Fr. Trees Am.* 682. 1857.

Originated by a Mr. Richardson, Cambridge, Massachusetts; introduced in 1848. Perfect. Plants moderately productive; fruit large, roundish, light scarlet; flesh sprightly; good; midseason.

Richmond. 1. *Rural N. Y.* 47:710. 1888.

A chance seedling found in the woods in 1883 by a Mr. Collins, New Richmond, Michigan. Perfect. Plants numerous, unproductive; fruit of medium size, irregular round-conic, crimson; flesh medium firm; good; midseason.

Richmond (of Thompson). 1. *N. Y. Sta. Bul.* 447:76. 1918.

Originated in 1901 as a seedling of Thompson by Mark T. Thompson, Richmond, Virginia. Semi-perfect to perfect. In the Station beds, plants few, medium in vigor, healthy, very productive; fruit-stems medium in length and thickness, semi-erect; fruit above medium to small, very oblong-conic, necked, dull light red, juicy, firm, with red flesh, variable in flavor; fair; midseason.

Ridgeway. 1. *Rural N. Y.* **55**:498. 1896. 2. *N. Y. Sta. Bul.* **147**:188. 1898.

A cross between Jersey Queen and Parker Earle originated by M. H. Ridgeway, Wabash, Indiana, in 1892. It is valued in some sections for local markets. Added to the last catalog of the American Pomological Society in 1909. Perfect. Plants at this Station, numerous, vigorous, healthy, productive; fruit-stems short, stout; calyx large, leafy, detaches very easily; fruit above medium in size which is well retained, round-conic to wedge, glossy light red, medium firm, juicy, well flavored; good; midseason to late.

Riehl Seedlings. 1. *N. Y. Sta. Bul.* **76**:436. 1894. 2. *Ibid.* **218**:200. 1902.

E. A. Riehl, Alton, Illinois, sent a number of seedlings to this Station for trial at various times between 1893 and 1918. Nos. 5 and 6 are described in Bulletin 76 of this Station, and Nos. 25, 26, 27, 28, 29, 30, 31, 32 are described in Bulletin 218. No. 6 was introduced by Mr. Riehl as Ruby.

Rio. 1. *N. Y. Sta. Bul.* **64**:10. 1894.

Thompson No. 9. 2. *Mich. Sta. Bul.* **80**:10. 1892.

A seedling of Sharpless originated by Mark T. Thompson, Lakewood, Ohio, in 1887. Perfect. At this Station, plants vigorous, healthy, numerous, unproductive; fruit-stems good; fruit of medium size, round-conic, scarlet, firm, briskly subacid; good; midseason.

Rip Snorter. 1. *Mich. Sta. Bul.* **206**:54. 1903.

Originated with W. Rapp, Terre Haute, Indiana; introduced about 1902. Plants medium in number, vigorous, unproductive; fruit large, round-conic, light crimson; flesh soft; good; midseason.

Rippowam. 1. *Mag. Hort.* **32**:273. 1866. 2. *Ibid.* **34**:74. 1868.

Originated with J. W. Faulkner, Stamford, Connecticut, as a cross between Bicton Pine, an English variety, and Triomphe; introduced in 1865. Very similar to Eliza (of Rivers), an English sort. Perfect. Plants vigorous, moderately productive; fruit large, irregular round-conic to coxcomb, scarlet; flesh whitish, medium firm, subacid; fair.

Rival Hudson. 1. *Mag. Hort.* **13**:368. 1847.

Originated by John Burr, Columbus, Ohio, as a cross between Early Hudson and Burr. Imperfect. Plants hardy and very productive; fruit of medium size, conic, dark crimson; flesh firm, briskly subacid; good.

Roadside. 1. *Va. Sta. Tech. Bul.* **11**:84. 1916.

Said to be a cross between Klondike and a wild berry originated in Delaware. Perfect. Plants very numerous; fruit of medium size, round-conic, bright scarlet; flesh light red, subacid; early.

Rob Rusk. 1. *Mich. Sta. Bul.* **177**:22. 1899.

Originated with W. W. Sewall, Carthage, Missouri; introduced about 1897. Perfect. Plants numerous, weak, unproductive; fruit round-conic, crimson; flesh scarlet, firm; fair; early.

Robbie. 1. *Rural N. Y.* **55**:514. 1896. 2. *N. Y. Sta. Bul.* **218**:201. 1902.

A cross between Shuster and Kentucky raised by J. H. Black, Son & Company, Hightstown, New Jersey, in 1893. Perfect. Station plants few, medium in vigor, attacked

by leaf-spot, unproductive; fruit above medium to large, conic or wedge, light red, with tendency to green tips, firm, subacid, with pale red flesh; fair to good; late.

Robinson. 1. *Ann. Hort.* 202. 1892. 2. *N. Y. Sta. Bul.* **109**:236. 1896.

Originated by J. G. Robinson, Franklin County, Kansas, as a cross between Crescent and Charles Downing; introduced in 1891. Perfect. Station plants numerous, vigorous, healthy, productive; fruit-stems moderately long and thick; fruit medium to large, round-conic, scarlet, intermediate in firmness; fair; late.

Robusta. 1. Burbank *Cat.* 4. 1920.

Originated by Luther Burbank, Santa Rosa, California, in 1916 as a cross between Progressive and one of his seedlings; an everbearing sort. Fruit large, oval, scarlet; very good.

Rochester. 1. Green *Cat.* 82. 1902. 2. *N. H. Sta. Bul.* **137**:184. 1908.

Introduced in 1902 by Green's Nursery Company, Rochester, New York. Perfect. Plants numerous, medium in vigor, unproductive; fruit of medium size, round-conic, dark crimson; flesh light red, medium firm, sweet; fair; midseason.

Rockhill. 1. Kellogg *Cir.* 1923.

Originated in 1918 by Harlow Rockhill, Conrad, Iowa, as a cross between Early Jersey Giant and Progressive. Introduced in 1923 as an everbearing sort by the R. M. Kellogg Company, Three Rivers, Michigan, with the statement that it had been purchased by them from Mr. Rockhill for $50,000. It lost its fall-fruiting habit after being introduced and in a letter of September 25, 1923, from the Kellogg Company, Mr. Rockhill is quoted as assuming that it had reverted to one of its spring-bearing ancestors.

Rockhill Seedlings. 1. *N. Y. Sta. Bul.* **336**:63. 1911.

Since 1904 Harlow Rockhill, Conrad, Iowa, has sent out seedling strawberries under number. The following numbers have fruited at this Station and are described in Bulletin 336: Nos. 6, later named Standpat, 7, 9, 10, 11, 12.

Romeyn.

Romeyn Seedling. 1. *Mag. Hort.* **34**:270. 1868.

Originated by M. Romeyn, Kingston, New York, as a supposed seedling of Triomphe, with which variety it was practically identical; introduced in 1866. Perfect. Plants medium in number, vigorous and productive; fruit large, irregular round-conic, light crimson; flesh light red, medium firm, mildly subacid; very good; late midseason.

Roosevelt. 1. *Va. Sta. Tech. Bul.* **11**:85. 1916. 2. *Ohio Sta. Bul.* **364**:84. 1923.

Originated with T. B. West, Perry, Ohio; introduced in 1911. Perfect. Plants vigorous and productive; fruit medium to large, conic to wedge-shape, regular, dark crimson; flesh dark red, firm, juicy, subacid; good; late.

Rose Ettersburg. 1. *Cal. Sta. Rpt.* 105. 1898–01. 2. *N. Y. Sta. Bul.* **401**:189. 1915.

Raised in 1896 by Albert F. Etter, Ettersburg, California, who gives its parentage as "a third generation Sharpless-Parry by Peruvian Beach cross." It is of little value at this Station. Perfect. As grown here, plants medium to numerous, healthy, dwarfish,

moderately productive; leaves small, dark green; flowers large, showy, above the foliage; fruit-stems thick, erect; calyx large, pale green; fruit large to medium, decidedly variable in shape, very pale light red, colors unevenly, juicy, tender, mild, whitish at the center; fair; late.

Roseberry. 1. *Trans. Lond. Hort. Soc.* **2**:380, Pl. 27. 1817. 2. *Ibid.* **6**:156. 1826. 3. Downing *Fr. Trees Am.* 528. 1845.

An old Scotch variety grown considerably in this country from 1825 to 1840. Plants numerous, vigorous, productive; fruit large, conic, necked, dark red; flesh firm, pale scarlet, mild; good; midseason.

Roser. 1. *Ind. Sta. Bul.* **48**:7. 1894.

Originated by E. L. Roser, Brittain, Ohio; introduced about 1895. Mr. Roser also sent out several other seedlings under number for trial. Imperfect. Plants medium in number, vigorous, productive; fruit medium to large, roundish, scarlet; flesh soft; good; midseason.

Ross Phœnix. 1. *Mag. Hort.* **8**:270, 351. 1842. 2. Downing *Fr. Trees Am.* 533, fig. 1845.

Raised from seed of Keens Seedling in 1837 by Alexander Ross, Hudson, New York. It was a popular sort about 1845 to 1855. Perfect. Plants vigorous and productive; fruit large, coxcomb-shape, very dark crimson; flesh firm; very good; midseason.

Rough Rider. 1. *Am. Gard.* **20**:882, fig. 229. 1899. 2. *N. Y. Sta. Bul.* **276**:75. 1906.

This variety originated in 1893 with Charles Learned, Pulaski, New York, as a cross between Bubach and Gandy. It has received many favorable reports from New York but seems not to have succeeded greatly elsewhere; not now a leading variety in New York. Perfect. Plants medium in height and number, vigorous, usually healthy, variable in yield; fruit-stems of medium length, variable in thickness, semi-erect; berries large, retain good size, round-conic or wedge, attractive dark red; flesh well colored throughout, firm, juicy, agreeably acid, pleasantly flavored; good; late.

Royal Sovereign. 1. *Gard. Chron.* 3d Ser. **15**:594. 1894. 2. *Am. Gard.* **21**:255. 1900.

Raised by Thomas Laxton, Bedford, England, as a cross between Noble and King of the Earlies, English varieties; introduced by Laxton Brothers in 1891. It is a standard sort in England and is grown considerably in British Columbia and Nova Scotia. Perfect. Plants medium in number, productive; fruit large, round-conic to wedge-shape, bright crimson; flesh medium red, firm, briskly subacid; good; very early.

Ruby. 1. *Ohio Sta. Bul.* **85**:19. 1897. 2. *N. Y. Sta. Bul.* **309**:544. 1908. *Riehl No. 6.* 3. *N. Y. Sta. Bul.* **76**:436. 1894.

A supposed cross between Crescent and Sharpless raised by E. A. Riehl, Alton, Illinois, in 1890. It is valued for canning. Perfect. On the Station grounds, plants medium in number and vigor, healthy, productive; fruit-stems variable in length, slender, prostrate; fruit large to medium, irregular wedge to round-conic, dull dark red, firm, pleasantly acid, with red flesh, well flavored; good.

Ruby (of Henderson). 1. *Va. Sta. Tech. Bul.* **11**:86. 1916.

Great Ruby. 2. Henderson *Cat.* 143. 1902.

Introduced in 1902 by Peter Henderson, New York City. Imperfect. Plants numerous; fruit of medium size, round-conic to wedge-shape, dark crimson; flesh dark red, very firm, mildly subacid; fair; early midseason.

Rumark. 1. Kellogg *Cat.* 21. 1919.

Introduced in 1919 by the R. M. Kellogg Company, Three Rivers, Michigan. Semi-perfect to imperfect. In the Station beds, plants few, medium in vigor and height, productive, healthy; leaves small, dark green; flowers early, with a very large receptacle; fruit-stems long, thick, prostrate; pedicels long, slender; seeds much raised; fruit above medium in size, quickly becomes smaller, irregular wedge to blunt-conic, necked, light to medium red, colors unevenly, juicy, firm, hard at the center, sprightly; poor to fair; early to midseason.

Rural Gem. 1. *N. Y. Sta. Bul.* **147**:188. 1898.

A seedling o Crescent which originated with J. L. Fairman, Thompsonville, Connecticut; introduced about 1898 by J. H. Pease & Son of Thompsonville. Perfect. Plants numerous, moderately vigorous, productive; fruit of medium size, roundish conic, light scarlet; flesh medium firm; fair; late.

Rush. 1. *N. Y. Sta. Bul.* **76**:437. 1894.

A cross between Miner and Crescent introduced about 1893 by Jackson & Perkins, Newark, New York. Imperfect. Plants at this Station, vigorous, healthy, numerous, medium productive; fruit-stems good; fruit of medium size, dark red, moderately firm; fair.

Russell. 1. *Horticulturist* **18**:244. 1862.

Russell Prolific. 2. Fuller *Sm. Fr. Cult.* 98. 1867.

Originated in 1856 by Harvey Russell, Seneca Falls, New York, as a cross between McAvoy Superior and Longworth. The variety was placed in the catalog of the American Pomological Society in 1873 from which it was removed in 1883. Imperfect. Plants numerous, vigorous, productive; fruit very large, irregular round-conic, necked, dark crimson; flesh light red, moderately firm, sweet; good.

Russell Advance. 1. *Cult. & Count. Gent.* **41**:408. 1876.

Originated by Harvey Russell, Seneca Falls, New York; introduced about 1868. The variety was added to the American Pomological Society's catalog in 1879, from which it was removed in 1897. Perfect. Plants few; fruit large, conic, crimson, soft; very good; early midseason.

Ruth.

Morgan No. 21. 1. *N. Y. Sta. Bul.* **447**:74. 1918.

A chance seedling found in a fence corner in 1911 by J. A. Morgan, Scottsville, New York. As grown at this Station this variety is worthy of trial because of the vigor and productivity of the plants and the large, firm, attractive fruit. Imperfect. Plants of medium number, unusually vigorous and tall, healthy, very productive; leaves of largest

size, thick, dark green; flowers cup-shaped; fruit-stems very long, thick, erect; calyx very large, leafy; fruit very large, drops rapidly in size, round-conic to blunt-wedge or inclined to oblate, glossy dark red, very firm, juicy, sprightly; very good; early to midseason.

Ryckman. 1. *W. N. Y. Hort. Soc. Rpt.* 27. 1904. 2. *N. Y. Sta. Bul.* **309**:545. 1908.

A chance seedling discovered by George F. Ryckman, Brocton, New York, who introduced it in 1901. It is practically identical with New York. Perfect. Station plants medium in number, vigorous, healthy, productive; fruit-stems long, variable in thickness; fruit very large to medium, round-conic to slight wedge, or elongated, furrowed, dull light to dark red, firm, mild, not juicy; fair to good; midseason.

Sadie. 1. *Ann. Hort.* 211. 1891. 2. *N. Y. Sta. Bul.* **44**:143. 1892.

Originated by M. T. Thompson, Lakewood, Ohio; introduced in 1891. Imperfect As grown here, plants vigorous, numerous, healthy, productive; fruit-stems short, weak; fruit small, obtuse-conic, bright red, moderately firm, tart; good; early.

Saint Joseph. 1. *Am. Gard.* **20**:539. 1899. 2. *Soc. Nat. Hort. France Pom.* 164, fig. 1907. 3. *N. Y. Sta. Bul.* **401**:189. 1915.

Originated in 1893 by Abbé Thivolet, Chenoves, Saone-et-Loire, France, as a cross between White Alpine and an unknown sort; introduced in America in 1899 by the United States Department of Agriculture. In Europe it was considered the first good large-fruited everbearing sort, but it shows only a slight tendency to fall-fruiting in this country. The plants are tender and the fruit is small, although of the highest quality. Perfect. On the Station grounds, plants medium in vigor, yield and number, low growing, healthy; sometimes autumn-fruiting; flowers small, early; fruit does not pick easily, small, blunt-conic to wedge, dull medium red, firm, sweet, well flavored, aromatic, whitish at the center; very good to best; early.

St. Louis. 1. *Va. Sta. Tech. Bul.* **11**:86. 1916.

Raised in 1903 by A. T. Goldsborough, Washington, D. C., as a cross between Commander and one of his own seedlings the parentage of which was British Queen by Louis Gauthier. This variety is said to have produced a berry measuring three and one-half inches by three and one-sixteenth inches, weighing three and three-fourths ounces. Imperfect to semi-perfect. Plants medium in number; fruit large, irregular round-conic, light crimson; flesh light red, medium firm, sweet; very good; late midseason.

St. Louis (of Bauer). 1. *N. Y. Sta. Bul.* **309**:545. 1908.

Raised in 1904 by J. A. Bauer, Judsonia, Arkansas, as a cross between Haverland and Thompson. Perfect. In the Station beds, plants medium in number, vigorous, healthy, very productive; fruit-stems slender, prostrate; fruit large to medium, drops in size, variable in shape, very light dull red, soft, medium in acidity, inferior in flavor; poor; early

St. Martin. 1. *Mass. Hort. Soc. Rpt.* 229. 1914. 2. Graton *Circ.* 1920.

Originated in 1908 by Louis Graton, Trumansburg, New York. It received a silver medal from the Massachusetts Horticultural Society. Perfect. Plants at this Station, of medium vigor, number, and height, healthy, moderately productive; flowers medium early, very large; fruit-stems medium in length, thick, semi-erect; pedicels long, thick;

calyx very large, detaches readily, leafy; seeds much raised; fruit large chunky wedge, glossy dark red, often with poorly developed apex, juicy, firm, with red flesh, well flavored; very good; midseason.

Salem. 1. *Rural N. Y.* **58**:514. 1899. 2. *N. Y. Sta. Bul.* **218**:201. 1902.

Originated by B. M. Smith, Beverly, Massachusetts; introduced in 1900. Perfect. At this Station, plants weak, low growing, exposing the fruit to the sun, productive, healthy; fruit below medium to large, irregular and roughish, glossy deep red, soft, subacid, with red flesh; fair; midseason.

Salisbury. 1. *N. Y. Sta. Bul.* **336**:65. 1911.

A chance seedling found in Salisbury, North Carolina; introduced by E. W. Townsend & Sons, Salisbury, Maryland, in 1906. Imperfect. Station plants few, medium in size, vigor, and yield, healthy; fruit large to medium, wedge or conic, dull very light red, very juicy, tender, subacid, inferior in flavor; poor; late.

Salter. 1. *U. S. D. A. Pom. Rpt.* 393. 1891.

Cultivated in Mississippi about 1891. Perfect. Fruit medium in size, conic, dark crimson; flesh firm, acid; early.

Sam Sperry. 1. *Mich. Sta. Bul.* **177**:22. 1899.

Originated with W. W. Sewall, Carthage, Missouri; introduced in 1907. Perfect. Plants low; fruit conic, bright scarlet; flesh light red, very firm; midseason.

Sam Wherry. 1. *Va. Sta. Tech. Bul.* **11**:87. 1916.

Originated in 1905 by Sam E. Wherry, Durant, Mississippi, as a cross between Klondike and Red Bird. Perfect. Plants numerous; fruit large, oval, with a long neck, dark scarlet; flesh medium red, firm, acid; fair; early midseason.

Sample. 1. *Am. Gard.* **19**:236, 288, fig. 57. 1898. 2. *N. Y. Sta. Bul.* **218**:201. 1902.

Once a standard sort, Sample is now rapidly passing from cultivation although it is still more or less grown in New York, New England, and the states of the Middle West. The variety came into prominence because of the productiveness of the plants and its large, handsome, well-flavored fruits. The berries are too soft to ship long distances, but it was, and still is, in some localities a very good sort for local markets and home gardens. Dunlap makes a good pollinator. Sample originated as a chance seedling in a bed of Leader in 1894 with J. D. Gowing, North Reading, Massachusetts; introduced by Charles S. Pratt of that place in 1898; added to the fruit list of the American Pomological Society in 1909.

Imperfect. Plants numerous, vigorous, healthy, productive; leaves dark green, dull, rugose. Flowers late midseason, small; petals 6–8. Fruit late; fruit-stems short, thick, prostrate; pedicels short, slender; calyx of medium size, flat, well colored; sepals broad; berries large to medium, conic or wedge; apex slightly pointed; color glossy bright, dark red; seeds sunken; flesh dark red, firm, juicy, subacid to somewhat sprightly; quality good.

Sampson. 1. *Am. Gard.* **21**:631. 1900. 2. *N. Y. Sta. Bul.* **218**:201. 1902.

Originated in 1893 by D. J. Miller, Millersburg, Ohio. Perfect. As grown here, plants numerous, vigorous, healthy, with large, dark green leaves; fruit medium to very large, variable in shape, necked, dull light red, firm, juicy, with light colored flesh; fair; late.

Sandoval. 1. *Ia. Hort. Soc. Rpt.* 358. 1891. 2. *N. Y. Sta. Bul.* **64**:11. 1894.

Originated by C. B. Warfield, Sandoval, Illinois; introduced in 1891. Added to the catalog of the American Pomological Society in 1897, where it remained in the last catalog in 1909. Perfect. On the Station grounds, plants vigorous, medium healthy, few, unproductive; fruit-stems good; fruit of medium size, symmetrical, round-conic, dark red, firm, with dark red flesh; good; midseason to late.

Saratoga. 1. *N. Y. Sta. Bul.* **309**:546. 1908.

Originated in 1903 as a cross between Glen Mary and Sample by William Palmer, Rexford Flats, New York. Perfect. In the Station beds, plants medium in number and vigor, attacked by leaf-spot, very productive; fruit-stems short, very thick, prostrate; fruit large to medium, blunt-wedge, glossy dark red, very firm, sprightly to acid; well flavored; good to very good; early midseason.

Satin Gloss. 1. *Mich. Hort. Soc. Rpt.* 169. 1882.

A seedling of Lady Finger, originated by Oscar Felton, Mechanicsburg, New Jersey; introduced about 1880. Plants weak and unproductive; fruit small, round-conic, glossy scarlet; flesh soft, juicy, mildly subacid; good.

Satisfaction. 1. *Rural N. Y.* **55**:515. 1896. 2. *Can. Exp. Farm Bul.* **62**:38. 1909.

A seedling of Wilson originated by G. W. Howard, Stevensville, Michigan; introduced about 1896. Perfect. Plants medium in number, vigorous; fruit medium in size, roundish, bright crimson; flesh bright red, medium firm, juicy, briskly subacid; good; midseason.

Saunders. 1. *Can. Hort.* **14**:263. 1891. 2. *Can. Exp. Farm Bul.* **62**:38. 1909.

Originated by John Little, Granton, Ontario, as a supposed cross between Crescent and Sharpless; introduced in 1890; has been grown extensively in Canada. It was added to the catalog of the American Pomological Society in 1897, where it remained in 1909. Plants numerous, medium in vigor and productivity; fruit of medium size, round-conic to wedge-conic, dark red, sometimes with green tips; flesh light red, medium firm, juicy, subacid; good; late.

Saunders Success. 1. *N. Y. Sta. Bul.* **76**:437. 1894.

Originated with A. Saunders, Sac City, Iowa; introduced about 1893. Perfect. Plants at this Station, vigorous, healthy, numerous, unproductive; fruit-stems good; fruit of medium size, scarlet, soft; fair; midseason.

Scarlet Ball. 1. *Mich. Sta. Bul.* **104**:68. 1894. 2. *Can. Exp. Farm Bul.* **62**:38. 1909.

Originated by E. W. Cone, Menomonie, Wisconsin; introduced about 1892. Imperfect. Plants few, vigorous; fruit medium to large, roundish, scarlet; flesh pale red, firm, juicy, subacid; very good; late.

Scarlet Cone. 1. Downing *Fr. Trees Am.* 1002. 1869.

Raised by Ellwanger & Barry, Rochester, New York; introduced in 1850. Imperfect. Plants vigorous and very productive; fruit large, conic, bright scarlet.

Scarlet Melting. 1. *Mag. Hort.* **13**:368. 1847.

A cross between Hovey and Burr, raised about 1845 by John Burr, Columbus, Ohio. Imperfect. Plants numerous, vigorous, very productive; fruit medium in size, long-conic, necked, bright red; flesh very soft; good; early.

SAMPLE

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Schauber Seedlings. 1. *N. Y. Sta. Bul.* **401**:189. 1915.

George R. Schauber, Ballston Lake, New York, sent out various seedlings raised by him from 1905 to 1920. Nos. 106, 108, 150, 701, and 705 have been tested at this Station, and the last two are described in Bulletin 401. No. 150 was the most promising of the lot but was inferior in quality, although large and very productive.

Schild Seedlings. 1. *N. Y. Sta. Bul.* **401**:190. 1915.

H. J. Schild, Ionia, Michigan, has sent out various seedlings under number; the following numbers have been tested at this Station and described in Bulletin 401: Nos. 2, 8, 10, and 12.

Scott. 1. *Mag. Hort.* **19**:543. 1853. 2. Hovey *Fr. Am.* **2**:67, Pl. 1856.

Raised by J. Scott, Brighton, Massachusetts, in 1847, as a cross between Prince Albert and Boston Pine. Added to the catalog of the American Pomological Society in 1862 from which it was removed in 1871. Perfect. Plants numerous, moderately vigorous, productive; fruit large, long-conic, dark crimson; flesh pale red, firm, rather dry, rich; good; midseason to late.

Scriver. 1. *Mich. Sta. Bul.* **176**:10. 1899.

Originated with J. D. McCrimmon, St. Louis, Michigan; introduced about 1899. Perfect. Plants vigorous, unproductive; fruit medium in size, long-conic, necked, dull dark crimson; flesh bright red, firm; good; midseason.

Seaford. 1. *Am. Gard.* **18**:536. 1897. 2. *N. Y. Sta. Bul.* **147**:188. 1898.
Lloyd. 3. *Col. O. Hort. Soc. Rpt.* 88. 1901.

A chance seedling which originated in 1892 with Charles Wright, Seaford, Delaware. It was added to the catalog of the American Pomological Society in 1899, where it remained in the last catalog in 1909. Imperfect. As grown here, plants medium in number; fruit medium to large, glossy light and dark red, conic to wedge, firm, juicy, acid; good; midseason.

See Seedlings. 1. *N. Y. Sta. Bul.* **76**:437. 1894. 2. *Rural N. Y.* **55**:514. 1896.

H. S. & A. J. See, Geneva, Pennsylvania, sent out several seedling strawberries under numbers in 1893 for trial. Nos. 1, 2, 3, 4, and 5 were sent out, of which Nos. 1 and 2 are described in Bulletin 76 of this Station.

Seek-No-Further. 1. *Mich. Sta. Bul.* **176**:10. 1899.

Originated with J. M. Wickizer, Marshall County, Indiana; introduced about 1896. Perfect. Plants numerous, vigorous, unproductive; fruit large, round-conic, light scarlet; flesh light red, moderately firm, juicy; fair; midseason.

Senator Wilson. 1. Gottwold *Circ.* 1921.

A chance seedling found in a strawberry bed by O. R. Gottwold, Sayville, New York, in 1913. Perfect. On the Station grounds, plants numerous, vigorous, tall, unproductive, healthy; fruit-stems long, thick, prostrate; calyx very large, leafy; seeds sunken; fruit large, drops in size, wedge to blunt-conic, dull medium red, colors unevenly, firm, rather dry, sweet; fair; early.

Seneca. 1. *N. Y. Sta. Bul.* **309**:547. 1908.

Originated in 1902 by L. J. Brundage, Dundee, New York. Perfect. In the Station beds, plants numerous, very vigorous, healthy, unproductive; fruit-stems medium in length, thick, semi-erect; fruit large to medium, drops in size, roundish, necked, very light red, soft, mild, with light colored flesh; fair; midseason.

Seneca Chief. 1. *Am. Hort. Ann.* 99. 1871. 2. *Mich. Pom. Soc. Rpt.* 99. 1877.

Originated by Hunt & Foote, Waterloo, New York, as a seedling of Miner. Added to the American Pomological Society's catalog in 1879, from which it was removed in 1883. Perfect. Plants numerous, vigorous, very productive; fruit of medium size, round-conic, bright scarlet; flesh light red, firm, subacid; good; midseason.

Seneca Queen. 1. *Gard. Mon.* **23**:240. 1881. 2. *Mich. Sta. Bul.* **55**:15. 1889.

Originated with Hunt & Foote, Waterloo, New York, as a seedling of Miner; introduced about 1879. Added to the catalog of the American Pomological Society in 1879, from which it was removed in 1897. Perfect. Plants numerous, productive; fruit of medium size, roundish, attractive dark crimson; flesh dark red, soft; good; midseason.

Seth Boyden. 1. *Am. Hort. Ann.* 96. 1871.

Boyden No. 30. 2. *Rec. Hort.* **2**:62. 1868. 2. Downing *Fr. Trees Am.* 980. 1869.

Originated in 1865 by Seth Boyden, Newark, New Jersey, as a cross between Green Prolific and Georgia Mammoth. From about 1870 to 1885 it was widely grown for market and home use. It required high culture. The American Pomological Society added the variety to its catalog in 1873, and removed it in 1897. Perfect. Plants medium in number, vigorous, very productive; fruit large, roundish conic, regular, with a short neck, bright crimson; flesh medium red, firm, juicy, subacid; good; early.

Sharpless. 1. *Gard. Mon.* **20**:239, 306. 1878.

Ontario. 2. *Rural N. Y.* **46**:511. 1887.

Dawley. 3. *N. Y. Sta. Bul.* **24**:332. 1890.

Shaw. 4. *Am. Gard.* **12**:633. 1891.

This variety originated in 1872 with J. K. Sharpless, Catawissa, Pennsylvania; introduced in 1877; added to the American Pomological Society's recommended fruit list in 1879. For many years Sharpless was the dominant strawberry in America and was especially well adapted for hill culture. It is, however, capricious as to soils and there were always many berries with green tips. Perfect. Plants medium to numerous, vigorous, healthy, variable in yield; fruit-stems long, thick, variable in position; calyx easily detached; berries large to very large, variable in shape, bright glossy red, inclined to green tips; flesh light red, medium firm, juicy, the larger berries hollow at the center, juicy, mildly subacid, good; late midseason.

Shawnee. 1. *Mich. Sta. Bul.* **129**:7. 1896.

Originated with James Stayman, Leavenworth, Kansas, as a seedling of Cyclone; introduced about 1892. Semi-perfect to perfect. Plants medium in number and vigor; fruit medium to large, long-conic, dark crimson; flesh medium red, medium firm, acid; good; midseason.

Shenandoah. 1. *Ohio Sta. Bul.* **154**:56. 1904. 2. *N. Y. Sta. Bul.* **276**:76. 1906.

Originated with W. A. Shook, McGaheysville, Virginia, as a chance seedling, supposed to be a cross between Bubach and Lovett; introduced about 1906. Perfect. At this Station, plants numerous, vigorous, productive, healthy; fruit-stems long, slender; fruit above medium to large, drops in size, round-conic to blunt-wedge, light red, medium soft, acid, well flavored; good; medium late.

Sheppard. 1. *Mich. Sta. Bul.* **195**:82. 1902. 2. *Ohio Sta. Bul.* **154**:57. 1904.

Originated by E. S. Sheppard of Tennessee, as a seedling of Monarch; introduced about 1896. Imperfect to semi-perfect. Plants numerous, moderately vigorous, productive; fruit of medium size, conic, often coxcombed, bright crimson; flesh pink, soft, sweet; fair; late.

Sherman. 1. *Mich. Sta. Bul.* **142**:154. 1897.

Originated with E. W. Cone, Menomonie, Wisconsin; introduced about 1896. Imperfect to semi-perfect. Plants numerous, moderately vigorous, very productive; fruit large, round-conic, dark crimson; flesh light red, firm; fair; midseason.

Sherman (of Cooper). 1. *N. Y. Sta. Bul.* **336**:65. 1911.

Originated in 1903 by Samuel Cooper, Delevan, New York, as a seedling of Pan American. Imperfect. Station plants numerous, above medium in size and vigor, healthy, productive; leaves very dark green; fruit large, retains size well, round-conic, glossy medium red, colors unevenly, very juicy, firm, tart; good; midseason. Worthy of trial.

Shipping King. 1. *Md. Sta. Bul.* **160**:217. 1911.

Originated with C. W. Scantling, Albemarle County, Virginia; introduced in 1908. Perfect. Plants numerous, vigorous; fruit of medium size, round-conic, dark glossy scarlet; flesh light red, firm, juicy, mildly subacid; good; midseason.

Shirtz. 1. *Ohio Hort. Soc. Rpt.* 108. 1880–81.

Originated in 1873 with E. J. Shirtz, Shelby, Michigan, as a chance seedling. Very similar to Bidwell. Added to the catalog of the American Pomological Society in 1883 and removed in 1897. Perfect. Plants medium in number, weak, moderately productive; fruit large, long-conic, necked, dark red; flesh medium red, medium firm, sweet; good; midseason.

Shropshire. 1. *U. S. D. A. Farmers' Bul.* **1043**:35. 1919.

Originated in New Jersey about 1911. It is grown extensively in southern New Jersey, where it is liked because of its productivity, attractive fruit with raised seeds, and large stems which hold it erect. Plants numerous, productive; fruit medium to large, irregular, conic wedge-shape, dark crimson; flesh red, firm, subacid; fair; midseason.

Shuster. 1. *Rural N. Y.* **47**:460. 1888.

Shuster's Gem. 2. *Rural N. Y.* **50**:527. 1891. 3. *N. Y. Sta. Bul.* **36**:634. 1891.

Originated in 1871 by S. S. Shuster, Frenchtown, New Jersey, as a cross between Crescent and Cumberland. Imperfect. On the Station grounds, plants medium in vigor, few, unproductive; fruit-stems stiff; fruit of medium size, obtuse-conic, dark red, moderately firm, with dark red flesh; good; medium early.

Shyster. 1. *Mich. Sta. Bul.* **163**:70. 1898.

Originated with Mark T. Thompson, Rio Vista, Virginia; introduced about 1897. Plants numerous, vigorous and productive; fruit large, round-conic, light scarlet; flesh bright red, medium firm, juicy, acid; fair; early midseason.

Silver Coin. 1. *N. Y. Sta. Bul.* **336**:65. 1911.

A chance seedling which originated in 1902 with W. W. Kennedy, Red Bank, New Jersey. Perfect. In the Station beds, plants medium in number, size, and vigor, moderately productive; fruit-stems long, thick, prostrate, much branched; fruit above medium in size, round-conic, dull light red, very juicy, tender, subacid, inferior in flavor; fair; late.

Silvia. 1. *Can. Exp. Farms Rpt.* 299. 1913.

A seedling of Belt raised in 1906 at the Central Experimental Farm, Ottawa, Canada. Plants medium in number; fruit large, roundish to wedge-shape, dark crimson; flesh medium red, medium firm, briskly subacid; good; late midseason.

Sionilli. 1. Kellogg *Cat.* 22. 1919.

Originated in 1915 with R. M. Sears, La Grange, Illinois. Semi-perfect to perfect. Plants at this Station, very few, medium in vigor and height, healthy, unproductive; leaves thick, dark green; flowers early; fruit-stems short, thick, prostrate; calyx large, raised; seeds sunken; fruit above medium to medium in size, conic to wedge, glossy medium red, moderately juicy, very firm, subacid; fair; early to midseason.

Smeltzer. 1. *Del. Sta. Bul.* **24**:10. 1894.

Smeltzer Early. 2. *Mich. Sta. Bul.* **100**:12. 1893.

Originated with F. H. Smeltzer, Van Buren, Arkansas; introduced about 1892. Plants numerous, vigorous and productive; fruit small to medium in size, round-conic, dark crimson; flesh dark red, firm; fair; early midseason.

Smith. 1. *N. Y. Sta. Bul.* **64**:10. 1894.

Smith Seedling. 2. *Mich. Sta. Bul.* **130**:51. 1896.

A seedling of Wilson which originated with L. Smith, Rock County, Wisconsin; introduced in 1893. Perfect. At this Station, plants vigorous, healthy, numerous, productive; fruit-stems good; fruit of medium size, roundish, light red, firm; fair; early.

Snowball. 1. *Mich. Sta. Bul.* **130**:51. 1896.

Originated in 1890 with E. W. Cone, Menomonie, Wisconsin. Perfect. Plants few, vigorous; fruit medium to large, long-conic, necked, bright scarlet; flesh light red, firm, acid; good; late midseason.

Somerset Maid. 1. *N. Y. Sta. Bul.* **309**:548. 1908.

Originated in Massachusetts; introduced about 1906. Perfect. Station plants medium in number and vigor, healthy, productive; fruit-stems variable in length, thickness and position; fruit above medium to small, variable in shape, furrowed, medium dark red, firm, pleasantly acid, with dark red flesh, well flavored; good to very good; midseason.

Sons Prolific. 1. *Mo. Bd. Hort. Rpt.* 297. 1909. 2. *N. Y. Sta. Bul.* **401**:191. 1915.

Originated in 1902 with James Sons, Jr., Seligman, Missouri, as a cross between Bubach and Aroma. Imperfect to semi-perfect. As grown here, plants few, below medium in

vigor, productive, healthy; fruit-stems long, thick, prostrate, much branched; calyx deeply sunken; fruit large to medium, irregular in shape, glossy medium red, firm, moderately juicy, with red flesh; fair to good; early.

Southard. 1. *Ann. Hort.* 202. 1892. 2. *N. Y. Sta. Bul.* **64**:10. 1894.

A chance seedling which originated with M. Southard, Lakeview, Ohio; introduced in 1892. Perfect. On the Station grounds, plants medium in vigor, few, moderately productive; fruit-stems good; fruit medium to large, round-conic, bright red, soft; good; midseason.

Southern Beauty. 1. *W. Va. Sta. Bul.* **52**:108. 1898.

Origin unknown. Plants very numerous, healthy, moderately vigorous; fruit of medium size, round-conic, light crimson; flesh medium red, medium firm, mildly subacid; good; midseason.

Sparta. 1. *Rural N. Y.* **55**:498. 1896.

Originated by J. L. Herbst, Sparta, Wisconsin, as a cross between Warfield and Jessie; introduced in 1895. Perfect. Plants numerous, vigorous, of medium productivity; fruit medium to large, long-conic, necked, dark crimson; flesh dark red, firm, sweet; very good; midseason.

Splendid. 1. *N. Y. Sta. Bul.* **76**:438. 1894.

Originated with C. H. Sumner, Sterling, Illinois; introduced about 1892. The variety was added to the catalog of the American Pomological Society in 1899, and remained in the last catalog in 1909. Perfect. In the Station beds, plants vigorous, healthy, very numerous, moderately productive; fruit-stems good; fruit medium to large, round-conic, bright red, medium firm to soft, sprightly; good; medium early.

Springdale. 1. *Gard. Mon.* **16**:279. 1874.

Originated by Amos Miller, Carlisle, Pennsylvania, as a supposed cross between Green Prolific and Jucunda; introduced in 1874. Added to the catalog of the American Pomological Society in 1879, and removed in 1883. Imperfect. Plants numerous, medium in vigor and productivity; fruit medium to large, round-conic, bright crimson; flesh light red, medium firm; good; late midseason.

Springdale (of Stayman). 1. *Mich. Sta. Bul.* **130**:51. 1896.

Springdale Beauty. 2. *Ohio Sta. Bul.* **154**:57. 1904.

Originated by James Stayman, Leavenworth, Kansas, as a supposed cross between Crescent and Wilson; introduced about 1901. Perfect. Plants medium in number, moderately vigorous, productive; fruit of medium size, round-conic, bright scarlet; flesh light red, firm, subacid; good; early midseason.

Staderman. 1. *Ohio Sta. Bul.* **166**:79. 1905.

Introduced about 1904. Perfect. Plants numerous, vigorous, moderately productive; fruit large, conic, dark crimson; flesh red, moderately firm; good; late midseason.

Stahelin. 1. *N. Y. Sta. Bul.* **147**:189. 1898. 2. *Ibid.* **276**:76. 1906.

Stakeley. 3. *Md. Sta. Bul.* **124**:191. 1907.

A chance seedling which originated with F. C. Stahelin, Bridgman, Michigan; intro-

duced about 1897. Imperfect. Plants at this Station, numerous, vigorous, very productive; fruit-stems long, stocky; fruit medium to nearly large, drops quickly in size, oblate-conic to round-conic or wedge, glossy light red, firm, acid; fair to good; early.

Standard. 1. *Rural N. Y.* **48**:523. 1889. 2. *Mich. Sta. Bul.* **100**:12. 1897.

Originated with J. D. Gowing, North Reading, Massachusetts; introduced in 1891. Imperfect to semi-perfect. Plants few, moderately vigorous, productive; fruit medium to large, irregular round-conic, dark glossy crimson; flesh medium red, medium firm; good; midseason.

Standpat. 1. *Ia. Hort. Soc. Rpt.* 187. 1912. 2. *N. Y. Sta. Bul.* **447**:76. 1918.

Rockhill No. 6. 3. *N. Y. Sta. Bul.* **336**:63. 1911.

Originated with Harlow Rockhill, Conrad, Iowa, in 1906, as a cross between Dunlap and Pan American. Perfect. At this Station, plants very few, inferior in vigor, health, and yield; autumn-bearing; flowers early, very small; fruit-stems very short, slender, prostrate; calyx small, sunken; seeds prominent; fruit medium to small, blunt-conic, dull dark red, juicy, medium firm, subacid, inferior in flavor; poor; very early.

Stanley. 1. *Ga. Sta. Bul.* **32**:487. 1896.

Originated by Luther L. Stanley, Griffin, Georgia; introduced about 1896. Perfect. Plants very numerous, vigorous, productive; fruit large, conic, colors unevenly; flesh firm, acid; good; midseason.

Staples. 1. Crawford *Cat.* 1895. 2. *N. Y. Sta. Bul.* **109**:237. 1896.

Originated by Isaac Staples, Dayton, Ohio, as a seedling of Warfield. Perfect. Station plants moderately vigorous, numerous; fruit-stems short; fruit of medium size, roundish, dark red, firm, sweet, with red flesh; fair; early.

Star. 1. *Rural N. Y.* **57**:499. 1898. 2. *N. Y. Sta. Bul.* **309**:548. 1908.

Originated with E. W. Reid, Bridgeport, Ohio; introduced in 1897. Perfect. Station plants few, medium in vigor, healthy, unproductive; fruit-stems medium in length, variable in thickness and position; fruit large to medium, retains size well, round-conic to wedge, furrowed, dull dark red, seedy at the apex, firm, sweet, mild, with red flesh; good; midseason.

Stayman. 1. *Ia. Hort. Soc. Rpt.* 216. 1889.

Stayman No. 1. 2. *N. Y. Sta. Bul.* **24**:336. 1890.

Originated by James Stayman, Leavenworth, Kansas; introduced about 1885. Imperfect. Plants numerous, very vigorous, productive; fruit of medium size, round-conic, attractive scarlet; flesh light red, medium firm, acid; good; early midseason.

Stella. 1. *Rural N. Y.* **56**:471. 1897. 2. *N. Y. Sta. Bul.* **218**:201. 1902.

Originated in 1893 by J. H. Black, Son & Company, Hightstown, New Jersey, as a cross between Bubach and Sharpless. Imperfect. As grown here, plants medium in vigor and number, attacked slightly by leaf-spot; fruit above medium to very large, retains size well, mostly wedge, glossy red, soft, medium juicy, mild; fair; medium late.

Sterling. 1. *Am. Hort. Ann.* 99. 1871. 2. *Ohio Hort. Soc. Rpt.* 97. 1875–76.

Raised in 1867 from a lot of mixed seed by Matthew Crawford, Cuyahoga Falls, Ohio. Imperfect. Plants numerous, vigorous, productive; fruit large, oval-conic, necked, bright crimson; flesh light red, medium firm, acid; very good; midseason.

Stevens. 1. *U. S. D. A. Pom. Rpt.* 393. 1891.

Stevens Early. 2. *Can. Exp. Farm Bul.* **62**:39. 1909.

Originated in 1888 with Julius Schnadelbach, Grand Bay, Alabama, as a supposed cross between Crescent and Neunan; introduced in 1890. Imperfect. Plants numerous, vigorous, productive; fruit of medium size, roundish to wedge-conic, bright crimson; flesh medium red, medium firm, acid; fair; early.

Stevens (of New York).

Stevens Great American. 1. *N. Y. Sta. Bul.* **336**:66. 1911.

Originated with S. D. Stevens & Sons, Bridgeton, New York; introduced in 1911. Perfect. On the Station grounds, plants medium in number, size and vigor, healthy, moderately productive; fruit large, conic, necked, glossy medium red, very juicy, firm, tart, with red flesh; good; midseason.

Stevenson. 1. *Mich. Sta. Bul.* **163**:71. 1898.

Originated with Edward Stevenson, Stevensville, Michigan; introduced in 1898. Imperfect. Plants weak, unproductive; fruit small, round-conic, dark crimson; flesh medium red, medium firm; very good; midseason.

Stewart. 1. *Am. Jour. Hort.* **9**:274. 1871.

A seedling of Crimson Cone which originated prior to 1860. Widely grown in Maryland and Virginia about 1860 to 1870 as an early sort. Plants numerous; fruit of medium size, round-conic, dark crimson; flesh firm, sweet; good; early.

Stinger. 1. *Gard. Mon.* **8**:248. 1866.

A seedling of Triomphe raised in 1861 by W. H. Stinger, Philadelphia, Pennsylvania. Perfect. Plants numerous, vigorous, productive; fruit large, roundish oval to coxcombed, bright scarlet; flesh medium firm, good; early midseason.

Stone. 1. *Mich. Sta. Bul.* **163**:71. 1898.

Stone's Early. 2. *Can. Hort.* **18**:395. 1895.

Originated by C. C. Stone, Moline, Illinois, as a cross between Crescent and Piper; introduced about 1895. Imperfect. Plants numerous, very vigorous and productive; fruit medium to large, long-conic, bright scarlet; flesh light red, medium firm; fair; early.

Stouffer. 1. *Mich. Sta. Bul.* **189**:116. 1901.

On trial at the Michigan Station in 1901. Perfect. Plants few, very vigorous, moderately productive; fruit large, irregular round-conic, dark crimson; flesh medium firm, sweet; fair; midseason.

Strickland. 1. *U. S. D. A. Pom. Rpt.* 393. 1891.

Originated with Edmund Gookin, Ponchatoula, Louisiana. Imperfect. Fruit large, oblong-conic, dark scarlet, acid; late.

Strouse Champion. 1. *Rural N. Y.* **55**:514. 1896.

Originated with David Strouse, Royersford, Pennsylvania; introduced about 1896. Perfect Plants numerous, vigorous; fruit medium to large, long-conic, necked, scarlet; flesh medium red; good; midseason.

Success. 1. *Mich. Sta. Bul.* **176**:11. 1899. 2. *U. S. D. A. Farmers' Bul.* **1043**:35. 1919.

Originated by A. J. Hannah, Whigville, Connecticut, as a cross between Bubach and Michel; introduced in 1897. This variety is popular in parts of New Jersey and New England for home use because of its attractive, excellent quality fruit. Plants numerous, very vigorous, moderately productive; fruit medium to large, irregular round-conic, bright scarlet; flesh light red, soft, mildly subacid; good; early midseason.

Sucker State. 1. *Ill. Hort. Soc. Rpt.* 105. 1879. 2. *Mich. Hort. Soc. Rpt.* 169. 1882.

Originated about 1876 by J. B. Miller, Anna, Illinois, as a cross between Green Prolific and Wilson; introduced in 1885, and for a few years was a popular sort in Illinois. It was added to the catalog of the American Pomological Society in 1889, from which it was removed in 1897. Perfect. Plants numerous, vigorous, moderately productive; fruit of medium size, round-conic, sometimes irregular, bright crimson; flesh light red, very firm, subacid; good; late midseason.

Summit. 1. *Ohio Hort. Soc. Rpt.* 64. 1886–87. 2. *N. Y. Sta. Bul.* **24**:337. 1890.

Originated in 1880 by Matthew Crawford, Cuyahoga Falls, Ohio. Imperfect. In the Station beds, plants medium in vigor, numerous, unproductive; fruit-stems short; fruit large, round-conic, dark red, well flavored, medium firm; very good; late.

Sunapee. 1. *Mich. Bd. Ag. Rpt.* 101 1887.

Originated in New Jersey; introduced in 1886. Perfect. Plants numerous, vigorous; fruit of medium size, round-conic, dark crimson; flesh soft, acid; good; midseason.

Sunny South. 1. *Ohio Sta. Bul,* **166**:80. 1905.

Originated by Louis Hubach, Judsonia, Arkansas; introduced in 1903. Perfect. Plants medium in number, vigorous, moderately productive; fruit of medium size, round-conic to oblate, often with a short neck, light crimson; flesh light red, medium firm, acid; fair; early.

Sunnyside. 1. *N. Y. Sta. Bul.* **64**:11. 1894.

Originated with C. S. Pratt, Reading, Massachusetts, by whom it was introduced in 1895. Imperfect. Plants at this Station, very vigorous, numerous, healthy, productive; fruit-stems long; fruit medium to large, round or wedge, glossy light red, moderately firm, acid; good; midseason to late, ripening period long.

Sunshine. 1. *Am. Gard.* **22**:618. 1901. 2. *Ohio Sta. Bul.* **154**:57. 1904.

Originated in Delaware; introduced in 1900. Imperfect. Plants numerous, moderately vigorous, productive; fruit of medium size, irregular roundish, bright scarlet; flesh pink, firm, subacid; fair; late.

Superb. 1. *Ia. Hort. Soc. Rpt.* 141. 1913. 2. *N. Y. Sta. Bul.* **401**:191. 1915.

After Progressive without question Superb is the best of the double-cropping strawberries The variety has to recommend it hardy, healthy, vigorous, and for this type of

SUPERB

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strawberry, productive plants. The fruits are large, satisfactory in color, shape, and size and so richly flavored that it is about the best of the double-cropping strawberries. The quality runs a little lower in late, cool weather. The variety needs an abundant supply of moisture, hence is well adapted to the irrigated regions of the Northwest, although it is very generally grown in New York and New England as well. This is a seedling of Autumn crossed with Cooper, which originated in 1908 with Samuel Cooper, Delevan, New York, who introduced it in 1911.

Perfect. Plants rather few, vigorous, healthy, very productive; autumn-bearing; leaves small, dark green, very glossy, thick, smooth. Flowers early, very small; petals 5–6, small; stamens numerous; receptacle small. Fruit early; fruit-stems short, thick, erect; pedicels short, thick; calyx sunken, well colored; sepals short, narrow; berries large, blunt-conic, plump; apex obtuse; color attractive, glossy dark red; seeds raised; flesh well colored throughout, firm, juicy, mildly subacid; quality good.

Superb (of Albaugh). **1.** *Rural N. Y.* **56**:470. 1897.

Originated by B. F. Albaugh & Son, Covington, Ohio; introduced in 1896. Plants moderately vigorous, productive; berries medium in size, round-conic, scarlet, soft; very good; early.

Superior. **1.** *Md. Sta. Bul.* **124**:191. 1907. **2.** *N. Y. Sta. Bul.* **336**:66. 1911.

Originated in Delaware; introduced about 1890. In parts of Delaware and New Jersey it has been popular because of its attractive fruit and good shipping quality. Perfect to semi-perfect. At this Station, plants numerous, large, vigorous, healthy, productive; flowers very early, small; fruit-stems long, erect; calyx flat, leafy; seeds raised; fruit large to medium, drops in size, conic or wedge, glossy bright red, juicy, firm, aromatic, well flavored, sweet, with red flesh; very good; midseason. Worthy of test.

Surprise. **1.** *Mich. Sta. Bul.* **55**:10. 1889.

Truitt's Surprise. **2.** *Am. Pom. Soc. Cat.* 48. 1883.

Truitt. **3.** *Rural N. Y.* **46**:589. 1887.

Originated by James Truitt, Chanute, Kansas; introduced prior to 1883. It was added to the catalog of the American Pomological Society in 1883 as Truitt's Surprise, and was removed from the catalog in 1897. Perfect. Plants numerous, medium in vigor and productivity; fruit medium to large, round-conic to wedge-conic, pale red; flesh bright red, juicy, subacid; good; midseason.

Sutherland. **1.** *Ohio Sta. Bul.* **146**:37. 1903. **2.** *Can. Exp. Farm Bul.* **62**:39. 1909.

Originated by Eugene Sutherland, West Coxsackie, New York, as a seedling of Bubach; introduced in 1899. Imperfect. Plants few, vigorous, productive; fruit small to medium in size, round-conic, light crimson; flesh pale red, moderately firm, juicy, subacid; good; midseason.

Swedenberg. **1.** *N. Y. Sta. Bul.* **336**:67. 1911.

A chance seedling, supposed to be of Beder Wood found near Sawyer, Michigan, by Charles Schwichtenberg. Perfect. Station plants medium in number, size, and vigor, attacked by leaf-spot, very productive; fruit large, round-conic, broad at the base, very

light red, medium juicy, tender, with light colored flesh, subacid, inferior in flavor; poor to fair; early.

Sweetheart. 1. *N. Y. Sta. Bul.* **401**:191. 1915.

Raised from seed of Maximus in 1905 by E. H. Bulson, Clifton, New York. Perfect. As grown here, plants numerous, vigorous, very productive, healthy; fruit-stems medium in length, thick, erect; fruit above medium in size, uniform, conic, glossy light to medium red, colors unevenly, juicy, firm, sprightly; fair to good; midseason.

Swindle. 1. *Ann. Hort.* 202. 1892. 2. *N. Y. Sta. Bul.* **64**:11. 1894.

Originated by B. Smalley, Bradford, Vermont, as a cross between Jersey Queen and Glendale; introduced in 1892 by G. H. & J. H. Hale, Glastonbury, Connecticut. Imperfect. On the Station grounds, plants few, tender to the sun, unproductive; fruit-stems good; fruit medium to large, irregular in shape, light red, firm, acid; good; midseason to late.

Taft. 1. *Am. Pom. Soc. Rpt.* 16. 1907. 2. *N. Y. Sta. Bul.* **336**:67. 1911.

A seedling of Goldsborough raised by A. T. Goldsborough, Washington, D. C.; introduced by him in 1906. Imperfect. As grown here, plants medium in number, vigorous, healthy, productive; fruit-stems medium in length and thickness, erect; calyx detaches readily; fruit large, retains size well, blunt-wedge to round-conic, with roughish surface, glossy dark red, juicy, sweet, moderately firm, aromatic, well flavored, with red flesh; good to very good; midseason.

Tama Jim. 1. *Mich. Sta. Bul.* **213**:8. 1904.

Originated in Iowa; introduced about 1901. Perfect. Plants numerous, vigorous, productive; fruit large, oblong-conic, bright red; flesh light red, medium firm; good; late.

Tardy. 1. *Va. Sta. Tech. Bul.* **11**:94. 1916.

Originated with J. L. Herbst, Sparta, Wisconsin; introduced about 1904. Perfect. On the Station grounds, plants few, medium in size and vigor, healthy, productive; fruit above medium in size, conic, dull medium red, moderately juicy and firm, with hollow center, subacid, aromatic; good; early midseason.

Teddy Roosevelt. 1. *Va. Sta. Tech. Bul.* **11**:94. 1916. 2. *Ohio Sta. Bul.* **364**:90. 1923.

Introduced about 1911 by E. W. Townsend & Sons, Salisbury, Maryland, as a cross between Autumn and Pan American; very similar to Autumn. Imperfect. In the Station beds, plants numerous, vigorous, tall, very productive; fruit-stems long, thick, very erect; calyx very large, flat, leafy; seeds sunken; fruit above medium to medium in size, dropping quickly, dull medium red, colors unevenly, juicy, firm, very sprightly, whitish at the center; fair; midseason

Tennessee Prolific. 1. *N. Y. Sta. Bul.* **91**:194. 1895. 2. *U. S. D. A. Farmers' Bul.* **1043**:194. 1895.

Tennessee. 3. *Am. Gard.* **15**:434. 1894.

Originated by J. C. Hodges of eastern Tennessee as a cross between Crescent and Sharpless; introduced about 1892. It has been grown extensively but is now discarded in most sections except near Washington, D. C., where it is popular because of productive

plants and attractive fruits. Added to the catalog of the American Pomological Society in 1899, where it remained in the last catalog in 1909. Perfect. Plants at this Station, vigorous, numerous, healthy, productive; fruit-stems long, prostrate; fruit medium to large, glossy bright red, round-conic to wedge, moderately firm, subacid; fair; midseason.

Tennyson. 1. *N. Y. Sta. Bul.* **147**:189. 1898. 2. *Mich. Sta. Bul.* **169**:151. 1899.

Originated with T. R. Tennyson of northern Arkansas; introduced about 1895. Perfect. Plants numerous, vigorous, moderately productive; fruit medium to large, round-conic, dark scarlet; flesh light red, soft; good; midseason.

Third Class. 1. *Ore. Bien. Crop Pest & Hort. Rpt.* 89. 1915.

Grown at the Oregon Station in 1915. Imperfect. Plants medium in number, vigor, and productivity; fruit of medium size, round-conic, dark red; flesh light red, soft, mildly subacid; fair; late.

Thompson. 1. *N. Y. Sta. Bul.* **109**:237. 1896. 2. *U. S. D. A. Farmers' Bul.* **1043**:35. 1919.

Lady Thompson. 3. *Meehans' Mon.* **5**:115. 1895.

A chance seedling which originated before 1891 with D. A. Thompson, Mt. Olive, North Carolina. Until about 1910 Thompson was grown extensively in the southeastern states, but it has now been supplanted by Klondike. The plants are very productive, but the fruit is too soft and too light in color for a general market variety. The American Pomological Society placed Thompson in its catalog in 1897, where it remained in the last catalog in 1909. Perfect. Plants medium in number and vigor, very productive; fruit of medium size, round-conic, bright light scarlet; flesh light red, medium firm, subacid; good; early.

Tilghman. 1. *Am. Gard.* **24**:332. 1903.

Tilghman Favorite. 2. *Md. Sta. Bul.* **124**:193. 1907.

Originated with W. B. Tilghman, Salisbury, Maryland; introduced about 1902. Imperfect. Plants numerous, vigorous, moderately productive; fruit large, long-conic, light-scarlet; flesh light red, firm, acid; good; late midseason.

Timbrell. 1. *Rural N. Y.* **50**:528. 1891. 2. *N. Y. Sta. Bul.* **76**:38. 1894.

A chance seedling found in his garden about 1887 by H. S. Timbrell, Unionville, New York. The fruit is valued for home use, but is too unattractive in color for market. Imperfect. At this Station, plants vigorous, healthy, medium in number, unproductive; fruit-stems good; fruit medium to large, dark red, roundish, irregular, mild, soft, subacid; fair to good; late.

Tippecanoe. 1. *N. Y. Sta. Bul.* **24**:339. 1890.

Badger. 2. *Am. Gard.* **17**:627. 1896.

Raised by J. H. Haynes, Delphi, Indiana, from mixed seed brought from France; introduced in 1890. Perfect. Station plants very vigorous, healthy, very productive; fruit-stems stout, prostrate; fruit grows in large clusters, large, Sharpless in shape, bright red, moderately firm, with pleasing acidity; good; medium early.

Todd. 1. *N. Y. Sta. Bul.* **447**:76. 1918.

Todd's Late Champion. 2. Todd *Cat.* 1. 1914.

A chance seedling found on his farm near a bed of Sample and Belt by W. S. Todd, Greenwood, Delaware, in 1909. Imperfect. As grown here, plants few, vigorous, attacked by leaf-spot, productive; fruit-stems short, very thick, erect; fruit large to medium, wedge or blunt-conic, irregularly furrowed, dull light red, colors unevenly, medium juicy, soft, sprightly, with whitish center; fair; very late.

Tom Walker. 1. *Mich. Sta. Bul.* **100**:13. 1893.

Originated by Thomas C. Walker, Barnesville, Ohio, as a cross between Sharpless and Manchester; introduced about 1892. Imperfect. Plants numerous, vigorous, productive; fruit large, round-conic, dark crimson; flesh dark red, firm; good; midseason.

Tonga. 1. *Mich. Sta. Bul.* **130**:52. 1896.

Originated by James Stayman, Leavenworth, Kansas; introduced about 1895. Imperfect. Plants numerous, vigorous, unproductive; fruit of medium size, irregular, round-conic, dull scarlet; flesh firm; fair; late midseason.

Topeka. 1. *Mich. Sta. Bul.* **122**:6. 1895.

Originated by James Stayman, Leavenworth, Kansas; introduced about 1892. Perfect. Plants medium in vigor and productivity; fruit medium to large, long-conic, dark crimson, medium firm; good; midseason.

Townsend. 1. *Va. Sta. Tech. Bul.* **11**:95. 1916.

Lady Townsend. 2. *Md. Sta. Bul.* **160**:213. 1911.

Originated with E. W. Townsend, Salisbury, Maryland, who introduced it in 1908. Perfect. Plants medium in number and vigor; fruit of medium size, long-conic, dark crimson; flesh red, firm, moderately juicy, acid; fair; early.

Townsend Seedlings. 1. *N. Y. Sta. Bul.* **64**:11. 1894.

Various seedlings of George Townsend, Gordon, Ohio, were sent out under numbers about 1890. In Bulletin 64 of this Station descriptions are given of the following: Nos. 2, 3, 9, and 20.

Trebla. 1. Etter *Cat.* 29. 1920.

Originated by Albert F. Etter, Ettersburg, California, in 1912, as a cross between two of his seedlings, Nos. 114 and 84, and is said to be a composite of *Fragaria chiloensis*, *F. vesca*, and *F. californica*. Perfect. On the Station grounds, plants unusually numerous, medium in vigor, dwarfish, unproductive, severely injured by leaf-spot, with small scanty foliage; fruit-stems short, medium thick, prostrate; calyx small, very dull; fruit medium to small, blunt-conic, dark red, very juicy, firm, with a hard, hollow center, subacid, inferior in flavor; poor; late midseason.

Triomphe. 1. *Va. Sta. Tech. Bul.* **11**:95. 1916.

Triomphe de Gand. 2. *Mag. Hort.* **24**:370. 1858. 3. Downing *Fr. Trees Am.* 1003. 1869.

Originated by M. de Jonghe, Brussels, Belgium; introduced into the United States about 1855 by Ellwanger & Barry, Rochester, New York. This is one of the few foreign

sorts that has been cultivated successfully in this country. Between 1860 and 1870 it was widely grown in the East and it is still esteemed for intensive culture on the Pacific Coast. It requires hill training and high cultivation. Triomphe was added to the American Pomological Society's list of promising new sorts in 1860, and to the fruit catalog in 1862 from which it was removed in 1897. Perfect. Plants medium in number, large, vigorous, hardy, and moderately productive; fruit large, roundish to coxcombed, light glossy crimson; flesh white, firm, juicy, mildly subacid; very good; late.

Triple Crown. 1. *Gard. Mon.* **23**:240. 1881. 2. *Mich. Hort. Soc. Rpt.* 167. 1882.

Originated by William Hunt, Waterloo, New York; introduced about 1880. It was added to the catalog of the American Pomological Society in 1879 from which it was removed in 1897. Perfect. Plants numerous, vigorous, very productive; fruit of medium size, roundish conic, dull dark crimson; flesh firm, very juicy, mildly subacid; very good; midseason.

Tubbs. 1. *N. Y. Sta. Bul.* **109**:237. 1896.

Originated by John Tubbs, Glen Burnie, Maryland; introduced in 1894. Perfect. Plants numerous, productive; fruit medium to large, round-conic, dark scarlet; flesh medium red, firm, mildly subacid; good; early midseason.

Twentieth Century. 1. *Ohio Sta. Bul.* **166**:80. 1905. 2. *Ibid.* **178**:66. 1906.

As grown at the Ohio Station, it was so similar to Bubach as to be indistinguishable from that variety.

Twilight. 1. *Rural N. Y.* **61**:480. 1902. 2. *Can. Exp. Farm Bul.* **62**:40. 1909.

Originated in Missouri; introduced about 1900. Perfect. Plants medium in number, vigorous, unproductive; fruit of medium size, round-conic to wedge-conic, bright red; flesh medium red, firm, subacid; good; midseason.

Twilley. 1. Allen *Cat.* 2. 1910. 2. *N. Y. Sta. Bul.* **401**:192. 1915.

A chance seedling which originated with W. J. Twilley, Cambridge, Maryland, about 1906. Perfect. In the Station beds, plants medium in number, vigorous, healthy, productive; fruit-stems long, thick, semi-erect; fruit large to above medium, distinctly wedge, necked, dull light red, firm, very mild, with well-colored flesh, inferior in flavor; poor; midseason.

Uitlander. 1. *Am. Pom. Soc. Rpt.* 16. 1907.

Originated in 1906 by A. T. Goldsborough, Washington, D. C., as a seedling of Flush. Fruit large, roundish, glossy crimson; flesh pink, moderately firm, moderately juicy, subacid; good; early.

Uncle Jim. 1. Flansburgh & Pierson *Cat.* 5. 1902. 2. *N. Y. Sta. Bul.* **309**:549. 1908. *Dornan.* 3. Budd-Hansen *Am. Hort. Ann.* **2**:416. 1903.

A chance seedling found on his farm near an old strawberry bed by J. F. Dornan, Glenn, Michigan, in 1898. It was later renamed Dornan by the Michigan Horticultural Society, but is more generally known by its original name. It is very similar to New York. Perfect. As grown here, plants medium in number, vigorous, healthy, productive; leaves

very large; fruit-stems thick, prostrate; fruit large to medium, retains size well, wedge to round-conic, with furrowed surface, dull light and dark red, firm, mild; fair to good; midseason.

Uncle Joe. 1. Vick *Cat.* 82. 1906. 2. *N. Y. Sta. Bul.* **309**:550. 1908.

Received as a seedling in a number of varieties sent to him from Cornell University in 1903 by John Howard, Irondequoit, New York. Perfect. On the Station grounds, plants medium to numerous, vigorous, with a slight amount of leaf-spot, above medium in yield; fruit-stems long, thick, medium erect; fruit variable in size and shape, furrowed, dull red, medium juicy, subacid; inferior in flavor; poor; midseason.

Uncle Sam. 1. *Mich. Sta. Bul.* **206**:55. 1903. 2. *N. Y. Sta. Bul.* **309**:550. 1908.

Originated in 1894 by F. E. Snow, Ada, Ohio, as a seedling of Herald. Perfect. In the Station beds, plants few, medium in vigor, injured by leaf-spot, productive; fruit-stems short to medium, very thick, semi-erect; fruit large to medium, retains size well, round-conic, glossy bright red, juicy, medium to firm, well flavored; good; midseason to late.

Uncle Sam (of Townsend). 1. Townsend *Cat.* 2. 1913. 2. *N. Y. Sta. Bul.* **401**:192. 1915.

Introduced in 1913 by E. W. Townsend & Sons, Salisbury, Maryland, with the statement that it had been received in 1909 from an unknown person in St. Louis, Missouri, as a new variety fround in a garden. Perfect. Plants at this Station, few, vigorous, healthy, productive; fruit-stems short, thick, variable in position; fruit above medium to small, round-conic to wedge, dull dark red, juicy, firm, sprightly, with red flesh; fair; early.

Unique Scarlet. 1. *Horticulturist* **3**:70. 1848–49.

Originated by William R. Prince, Flushing, New York; introduced about 1849. Perfect. Fruit of medium size, obovate, light scarlet, sweet; very good.

Up-to-Date. 1. *Rural N. Y.* **58**:514. 1899.

Originated in 1893 with J. E. Bever, Keithsburg, Illinois, as a supposed cross between Haverland and Jessie. Perfect. Plants few, weak, unproductive; fruit small, round-conic, light crimson; flesh medium red, soft; poor; early midseason.

Valley Pride. 1. *Va. Sta. Tech. Bul.* **11**:97. 1916.

Pride of the Valley. 2. *Ohio Sta. Bul.* **186**:7. 1907.

A chance seedling in a bed of Gandy, originating about 1900 with H. M. Martin, Stark County, Ohio. Fruit large, conic, dark crimson; flesh dark red, firm; good; midseason.

Van Deman. 1. *N. Y. Sta. Bul.* **24**:339. 1890. 2. *Ibid.* **36**:634. 1891.

Originated about 1885 by J. C. Bauer, Judsonia, Arkansas, as a cross between Crescent and Captain Jack. At one time grown in the South to pollinate Warfield and as an extra early sort. Perfect. At this Station, plants vigorous, stocky, productive, the fruit hidden beneath the dark green foliage; fruit-stems short; fruit above medium in size, round-conic, glossy red, firm, tart; good; very early

Van Fleet. 1. *Rural N. Y.* **63**:542. 1904.

Dr. Van Fleet. 2. *Rural N. Y.* **62**:518. 1903.

Originated by J. H. Black, Son & Company, Hightstown, New Jersey; introduced in 1903. Perfect. Plants medium in number, vigorous, productive; fruit large, round-conic, very dark crimson; flesh dark red, medium firm, sweet; very good; early.

Van Sant. 1. *Va. Sta. Tech. Bul.* **11**:97. 1916.

Governor Van Sant. 2. Salzer *Cat.* 94. 1906.

General Van Sant. 3. *N. H. Sta. Bul.* **137**:178. 1908.

Originated in Wisconsin; introduced in 1906 by John A. Salzer, La Crosse, Wisconsin. Plants numerous, moderately vigorous; fruit large, conic, necked, dark crimson; flesh medium firm; good; midseason.

Vanguard.

Originated in 1913 at the Horticultural Experiment Station, Vineland, Ontario, as a cross between Pocomoke and Ozark. Perfect. Plants medium in number, vigorous, fairly productive; fruit of medium size, holding up well through the season, round-conic, medium red; seeds raised; flesh firm; good; early.

Velvet. 1. *Ohio Sta. Bul.* **166**:80. 1905. 2. *N. Y. Sta. Bul.* **309**:550. 1908.

A cross between Jessie and Bubach raised by R. C. Cronk, Oregon, Wisconsin, in 1891. Imperfect. Station plants very few, weak, healthy, productive; fruit-stems short, slender to medium, prostrate; fruit large to medium, round-conic, dull dark red, medium firm, juicy; fair; midseason.

Venia. 1. *Mass. Hort. Soc. Rpt.* 143. 1917.

Originated by F. S. De Lue, Needham, Massachusetts. Awarded a silver medal by the Massachusetts Horticultural Society in 1917 for the best new strawberry of merit not yet introduced. Plants very productive; fruit early, season long.

Vera. 1. *N. Y. Sta. Bul.* **127**:332. 1897.

A chance seedling which originated with E. B. Stevenson, Freeman, Ontario; introduced in 1895. Imperfect. Plants medium in number, vigor, and productivity; fruit of medium size, conic, bright scarlet; flesh medium firm; good; early midseason.

Vicomtesse Hericart de Thury. 1. *Horticulturist* **11**:331. 1856. 2. Downing *Fr. Trees Am.* 1004. 1869.

Marquise de Latour Moubourg. 3. Goeschke *Erdbeeren* 212. 1874.

Duchesse de Trevise. 4. Elliott *Fr. Book* 458. 1854.

Raised about 1845 by M. J. Jamin, Bourg-la-Reine, France, as a seedling of Elton; introduced into this country about 1852. It was much grown in this country about 1860. Many plants sold for this variety, especially in Minnesota, have been Downer. Perfect. Plants medium in number, vigorous, moderately productive; fruit medium to large, irregular conic, scarlet; flesh light red, firm, subacid; good; early.

Victor. 1. *Am. Pom. Soc. Sp. Rpt.* 81. 1904–05. 2. *N. Y. Sta. Bul.* **309**:551. 1908.

Originated in 1893 by D. J. Miller, Millersburg, Ohio. Perfect. As grown here, plants very few, moderately vigorous, injured by leaf-spot, unproductive; fruit-stems short,

thick, prostrate; fruit large to medium, drops quickly in size, round-conic, dull dark red, firm, juicy, pleasantly acid; good; midseason to late.

Victor Hugo. 1. *Ann. Hort.* 203. 1892.

Hugo. 2. *Mich. Sta. Bul.* **104**:69. 1894.

Introduced in 1892 by Oakley Apgar, Califon, New Jersey Perfect. On the Station grounds, plants medium in number; fruit above medium to large, round-conic, dull light red, with poorly colored calyx, firm, subacid, well flavored; good; medium early.

Victoria. 1. Downing *Fr. Trees Am.* 678. 1857.

Trollope's Victoria. 2. *Mag. Hort.* **17**:400. 1851.

Boyden's Mammoth. 3. *Horticulturist* **16**:444. 1861.

Golden Queen. 4. *Mag. Hort.* **32**:298. 1866

Originated in 1849 by L. Trollope, Bath, England; introduced into this country soon afterwards, and until 1875 was a popular sort. It was added to the American Pomological Society's list of promising new sorts in 1856; to the catalog in 1862, from which it was removed in 1883. Perfect. Plants medium in number, vigorous, unproductive; fruit large, round-conic, light crimson; flesh light red, medium firm, sweet; good; midseason.

Vineland. 1. *Rural N. Y.* **42**:456. 1883. 2. *Mich. Bd. Agr. Rpt.* 101. 1887.

Originated with a Mr. Lord, Vineland, New Jersey; introduced about 1885. Perfect. Plants numerous, vigorous, moderately productive; fruit medium to large, round-conic, light red; flesh medium firm, acid; fair; late.

Viola. 1. *Ohio Hort. Soc. Rpt.* 58, 63. 1889–90. 2. *N. Y. Sta. Bul.* **24**:337. 1890.

Originated in 1884 with a Mr. Kershaw, Delaware County, Ohio, as a cross between Green Prolific and Sharpless. Believed by some to be identical with Monarch. Perfect. In the Station beds, plants very vigorous, unproductive, with large leaves; fruit-stems medium long, stiff; fruit very large, obtuse-conic, flattened at the apex, glossy dark red. firm, well flavored; good; midseason.

Viola (of Canada). 1. *Can. Exp. Farms Rpt.* 299. 1913.

A seedling of Belt raised in 1906 at the Central Experimental Farm, Ottawa, Canada. Imperfect. Plants medium in number; fruit large, conic to wedge-shape, crimson; flesh dark red, firm, briskly subacid; good; late midseason.

Virgilia. 1. *Can. Exp. Farms Rpt.* 299. 1913.

Raised from seed of Belt in 1906 at the Central Experimental Farm, Ottawa, Canada. Plants medium in number, vigorous, productive; fruit large, roundish to wedge-shape, dark crimson; flesh dark red, medium firm, subacid; good; midseason.

Virginia. 1. *N. Y. Sta. Bul.* **309**:551. 1908.

Originated by T. J. Custis, Accomac County, Virginia, as a cross between Hoffman and Sharpless; introduced in 1906. Added to the last catalog of the American Pomological Society in 1909. Imperfect. Plants at this Station, few, medium in vigor, healthy, productive; fruit-stems intermediate in length, thick, prostrate; seeds deeply sunken; fruit large to medium, drops in size, round-conic to wedge, glossy light and dark red, moderately firm, mild, inferior in flavor; poor to fair; early to midseason.

Vories. 1. *Wis. Sta. Bul.* **72**:16. 1899.

A chance seedling originating in 1892 with T. H. Vories, Wathena, Kansas. Perfect. Plants numerous, very vigorous, productive; fruit of medium size, round-conic, dark scarlet; flesh light red, soft, sweet; good; midseason.

Wabash. 1. *Rural N. Y.* **46**:677. 1887.

Originated by J. A. Foote, Crawfordsville, Indiana; introduced in 1887. Perfect. Berries large, irregular round-conic to ovate, dark crimson; flesh dark red, moderately firm; very good; midseason.

Wabesis. 1. *Am. Pom. Soc. Rpt.* 170. 1920.

Originated by H. J. Schild, Ionia, Michigan. Perfect. Plants productive. An " Indian strain " of autumn-fruiting strawberries.

Wabi. 1. *Am. Pom. Soc. Rpt.* 170. 1920.

Another " Indian strain " of autumn-fruiting strawberries which originated with H. J. Schild, Ionia, Michigan. Perfect. Productive.

Waits Perfection. 1. *Am. Pom. Soc. Rpt.* 210. 1922.

Originated by A. B. Katkamier, Macedon, New York. Autumn-fruiting; type of Superb but firmer and more productive.

Walden. 1. *N. Y. Sta. Bul.* **44**:144. 1892.

Originated with John B. Moore, Concord, Massachusetts; introduced about 1880. Imperfect. As grown here, plants very vigorous, medium in number, with light green foliage; fruit round-conic, large to very large, glossy red, moderately firm, well flavored; very good; late.

Waldorf. 1. *Rural N. Y.* **68**:674. 1909.

Originated with Dr. Walter Van Fleet, Little Silver, New Jersey, as a cross between President and Belt; introduced in 1909. Perfect. Plants vigorous, productive; berries large, roundish to round-conic, slightly necked, scarlet; flesh light red, moderately firm, sweet; good; moderately early.

Waldron. 1. *Ohio Sta. Bul.* **22**:218. 1890.

Originated about 1882 with Charles Waldron, Manchester, Ohio. Imperfect. Berries medium in size, round-conic, bright scarlet, moderately firm; good; midseason.

Walker. 1. Fuller *Sm. Fr. Cult.* 103. 1867.

Walker's Seedling. 2. Downing *Fr. Trees Am.* 672. 1857.

Supposed to be a seedling of Black Prince, originated in 1842 by Samuel Walker, Roxbury, Massachusetts. Perfect. Plants vigorous, productive; berries medium in size, conic, very dark crimson; flesh dark red, soft, acid; very good; midseason.

Wallace. 1. *Va. Sta. Tech. Bul.* **11**:98. 1916.

Three W's. 2. *N. Y. Sta. Bul.* **309**:549. 1908.

A chance seedling originated in 1901 by W. W. Wallace, Harriman, Tennessee. Perfect. On the Station grounds, plants medium to few, weak, healthy, very productive; fruit-stems short, very thick, prostrate; fruit large to medium, drops quickly in size, variable in shape, very dark red, medium firm, mildly acid, with a pleasant flavor; good; midseason.

Walnut Stump. 1. *N. Y. Sta. Bul.* **401**:192. 1915.

A cross between Bubach and Miner originated about 1900 by Sylvanus Gordon, Sergeantsville, New Jersey. Perfect. Plants at this Station, numerous, large, vigorous, productive, healthy; leaves very dark green; fruit-stems long, thick, erect; fruit medium in size, round-conic, glossy light red, with red flesh, tart, moderately firm; fair; late.

Walton. 1. *N. Y. Sta. Bul.* **44**:144. 1892.

Originated in 1886 with Silas Walton, Moorestown, New Jersey. Imperfect. In the Station beds, plants medium in vigor and number, with light green foliage; fruit small to medium conic, bright red, soft; good; medium early.

War-Dyke.

Originated in 1920 with E. W. Townsend & Sons, Salisbury, Maryland, as a cross between Warfield and Klondike. Imperfect. Plants vigorous, very productive; berries medium in size, very firm, resembling Klondike; midseason.

Ward Favorite. 1. Fuller *Sm. Fr. Cult.* 103. 1867.

Originated with I. M. Ward, Newark, New Jersey; introduced about 1858. Imperfect. Plants unproductive; berries medium in size, round-conic, dark crimson, firm; good.

Wardlow. 1. *U. S. Pat. Off. Rpt.* 200. 1861.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Perfect. Berries large, roundish, scarlet; early.

Warfield. 1. *Am. Gard.* **11**:522. 1890. 2. *Va. Sta. Tech. Bul.* **11**:98, fig. 17. 1916. *Warfield No. 2.* 3. *Ia. Hort. Soc. Rpt.* 359. 1891.

For a quarter of a century Warfield was a standard market variety in all of the northern commercial strawberry centers, from which it has been discarded except in parts of the Middle West. The variety came into prominence because of its hardy, healthy, productive plants. The fruits were liked by shippers, consumers, and canners; they retain their color, shape, and flavor very well under the most trying conditions for this crop. The berries often run small, unless the plants are grown on rich soils and given high culture. Dunlap is the best variety for cross pollination. The greatest defect of Warfield is the small size of its berries in light or poor soils and in dry weather. This variety, for many years a standard, originated as a chance seedling about 1882 with C. B. Warfield, Sandoval, Illinois. It may be a cross between Crescent and Wilson; introduced in 1885; added to the fruit catalog of the American Pomological Society in 1891.

Imperfect. Plants very numerous, of medium vigor, usually healthy, very productive; leaves small, thin, medium green. Flowers early, small; petals 6 to 8, small; receptacle small; fruit-stems short, thick, erect, single; calyx large for the size of the berry, raised, reflexed; pedicels short, stout; sepals long, narrow. Fruit early; medium to small, chunky round-conic to blunt-wedge, slightly necked, glossy attractive dark red; apex obtuse; seeds raised; flesh dark red to the center, juicy, firm, pleasantly sprightly; quality variable.

Warren. 1. Thomas *Am. Fruit Cult.* 452. 1875–85.

Originated with A. D. Webb, Bowling Green, Kentucky; introduced in 1876. Perfect. Berries large, round-conic, dark crimson, moderately firm; good; early.

WARFIELD

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Warren (of Thompson). 1. *Va. Sta. Tech. Bul.* **11**:99. 1916.

Originated in 1898 with Mark T. Thompson, Rio Vista, Virginia, as a seedling of Carrie. Imperfect. Berries large, round-conic, dark crimson; flesh dark red, firm; good; late.

Warren (of Warren). 1. *N. Y. Sta. Bul.* **447**:76. 1918.

A chance seedling found by S. H. Warren, Auburndale, Massachusetts, many years ago; introduced by W. F. Allen, Salisbury, Maryland, in 1914. Perfect. At this Station, plants numerous, medium in vigor, productive, injured by leaf-spot; leaves small, thick, very dark green; flowers very large; fruit-stems short, thick, semi-erect to prostrate; seeds raised; fruit large, holds up well in size, blunt-conic, glossy medium red, juicy, firm, sprightly, with red flesh; good; very late.

Wathena. 1. *Va. Sta. Tech. Bul.* **11**:98. 1916.

Originated at Wathena, Kansas; introduced about 1909. Perfect. Berries large, firm; good.

Waverly. 1. *U. S. Pat. Off. Rpt.* 200. 1861.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Imperfect. Berries large, oblong-conic, dark scarlet, firm; good.

Waymego. 1. *Am. Pom. Soc. Rpt.* 170. 1920.

Originated with H. J. Schild, Ionia, Michigan. Perfect. Berries large, dark glossy red, very firm, good; very late.

Wehrley Seedling. 1. *Va. Sta. Tech. Bul.* **11**:100. 1916.

Supposed to have originated in Massachusetts; introduced about 1869. Berries medium to large, round-conic, scarlet, firm; midseason.

Welcome. 1. *Mag. Hort.* **28**:400. 1862.

Originated with W. R. Prince, Flushing, New York; introduced about 1855. Perfect. Plants vigorous, hardy, productive; berries medium in size, conic, scarlet; flesh white, firm, sweet; good; early.

Wellington Marvel. 1. *Am. Pom. Soc. Rpt.* 170. 1920.

Originated by Wellington S. Butler, Merlin, Oregon; introduced in 1920. The variety is unsurpassed " in color, shape, flavor and good qualities. It is unequalled for table and excellent for canning."

Welton. 1. *Va. Sta. Tech. Bul.* **11**:100. 1916.

Listed in Michigan in 1899. Perfect. Berries round-conic, crimson, medium firm; poor; midseason.

Wentzell. 1. *Del. Sta. Bul.* **24**:10. 1894.

Originated with F. R. Wentzell, Monroeville, New Jersey; introduced about 1892. Perfect. Plants vigorous, productive; berries medium to large, round-conic to ovate, light scarlet, soft, sweet; good; midseason.

Westbrook. 1. *Am. Pom. Soc. Rpt.* 126. 1891. 2. *N. Y. Sta. Bul.* **44**:144 1894.

Originated about 1882 with C. W. Westbrook, Mt. Olive, North Carolina. Imperfect. Station plants moderately vigorous, with large, light green foliage; fruit small, conic, with many imperfect berries, tart, firm, inferior in flavor; poor.

Western Queen. 1. Downing *Fr. Trees Am.* 679. 1857.

Originated in 1849 by Professor J. P. Kirtland, Cleveland, Ohio. Imperfect. Plants hardy, productive; berries medium to large, round-conic, dark crimson, firm, subacid; good; midseason.

Westlawn. 1. *N. Y. Sta. Bul.* **64**:12. 1894.

Originated as a seedling of Longfellow (of Webb) by J. C. Bauer, Judsonia, Arkansas; introduced about 1892. Imperfect. As grown here, plants vigorous, very numerous, moderately productive, healthy; fruit-stems long; fruit of medium size, round-conic, dark red, firm, acid; good; midseason.

Weston. 1. *Gard. & For.* **6**:335. 1893. 2. *N. Y. Sta. Bul.* **147**:189. 1898.

Originated with E. A. Weston, Susquehanna County, Pennsylvania; introduced about 1891. Imperfect. Plants moderately vigorous and productive; berries medium to large, irregular round-conic, bright crimson, moderately firm, sweet; good; midseason.

White Alpine. 1. Lindley *Guide Orch. Gard.* 482. 1831. 2. *Va. Sta. Tech. Bul.* **11**:100. 1916.

A European sort which originated more than a century ago; introduced to America about 1820. Perfect. Plants very hardy; berries small, long-conic, white; flesh pure white, soft, very sweet; very good; season long with a marked autumn-fruiting tendency here.

White Novelty. 1. *N. Y. Sta. Bul.* **91**:194. 1895.

Originated in New Jersey as a seedling of White Alpine: introduced about 1892. Perfect. On the Station grounds, plants indicate a variety of *Fragaria vesca;* fruit small, white.

White Sugar. 1. *Am. Pom. Soc. Rpt.* 294. 1921.

Originated by Albert F. Etter, Ettersburg, California. Perfect. In the Station beds, plants medium to few, vigorous, tall, very productive, healthy; leaves thick, with long and coarsely toothed leaflets, dark bluish green; fruit stems long, thick, erect; calyx very small; seeds markedly raised; fruit of medium size, roundish wedge, often oblate, very unattractive dull white mingled with pink, juicy, moderately firm, with whitish flesh, very sweet to subacid; very good but variable; very late. The quality is much better than the appearance would indicate.

Whitney. 1. *Mich. Sta. Bul.* **163**:71. 1898.

Originated in Washington; introduced about 1895. Perfect. Berries small to medium, irregular, bright scarlet, moderately firm; good; late.

Wicomico. 1. *Va. Sta. Tech. Bul.* **11**:100. 1916.

Originated with A. J. Allen, Salisbury, Maryland; introduced about 1894. Imperfect. Berries medium in size, light crimson, soft; medium early.

Wide-Awake. 1. *N. Y. Sta. Bul.* **447**:77. 1918.

A seedling of Aroma originated in 1910 by Louis Hubach, Judsonia, Arkansas. Perfect. Plants at this Station, intermediate in number and vigor, healthy, productive; flowers very

early, large; fruit-stems variable in length, slender; calyx small; seeds raised; fruit large, furrowed, wedge to blunt-conic, unusually glossy, very dark red, juicy, very firm, tart, with dark red flesh, inferior in flavor; poor; midseason.

Wieland. 1. *Va. Sta. Tech. Bul.* **11**:100. 1916.

Introduced about 1886. Perfect. Berries small, round-conic, bright scarlet; flesh light red, soft; good; midseason.

Wilding. 1. *Va. Sta. Tech. Bul.* **11**:100. 1916.

Originated with A. N. Jones, Le Roy, New York; introduced in 1878. Perfect. Berries large, round-conic, light crimson, moderately firm; good; midseason.

Wildwood. 1. *N. Y. Sta. Bul.* **447**:77. 1918.

Found in a bed of Jersey Queen in 1904 by E. R. Foss, Salem, Iowa. Perfect. At this Station, plants very numerous and vigorous, attacked by mildew, very productive; fruit-stems long, slender, erect; fruit medium to small, blunt-conic, strongly necked, dull medium red, moderately juicy, soft, mild, aromatic; good; very late. This description is from stock of the introducer, yet the plants may not be true as the variety is said to be early and the berries roundish, varying greatly from the fruit just described.

Wilkins. 1. *Va. Sta. Tech. Bul.* **11**:101. 1916.

Introduced in 1913. Imperfect. Berries medium in size, conic, crimson, firm; good; very early.

Will Warfield. 1. *Va. Sta. Tech. Bul.* **11**:101. 1916.

Originated with W. W. Sewall, Carthage, Missouri; introduced about 1897. Perfect. Berries conic, bright scarlet, very firm; fair; midseason.

Willey. 1. *Horticulturist* **3**:51, 146. 1848–49.

Of American origin. Imperfect. Plants vigorous, hardy, very productive; berries medium in size, roundish, deep crimson, firm, acid; fair.

Williams. 1. *N. Y. Sta. Bul.* **309**:552. 1908.

A cross between Crescent and Sharpless originated by a Mr. Williams, Burford, Ontario; introduced in 1890. Perfect. Station plants few, medium in vigor, healthy, productive; fruit-stems variable in length and thickness, prostrate; fruit large to medium, drops quickly in size, round-conic, dull moderately dark red, firm, pleasantly acid, well flavored, with dark red flesh; good to very good; late.

Williams (of Virginia). 1. *Va. Sta. Tech. Bul.* **11**:101. 1916.

Originated in Virginia; introduced in 1915. Berries large, mildly subacid; very late.

Wilson. 1. *Ohio Hort. Soc. Rpt.* 12. 1867. 2. *Va. Sta. Tech. Bul.* **11**:101. 1916. *Wilson's Albany.* 3. *Mag. Hort.* **23**:399. 1857. 4. *Gen. Farmer* **21**:279. 1860.

No other strawberry has been so long under cultivation as Wilson, and no other one was so commonly grown in the prime of its popularity. For many years it was the leading sort in all parts of the United States, but is now to be found only about Rochester, New York, and occasionally in Oregon and Washington. In these regions it is liked for its productive plants and its dark red glossy fruits for which canners are willing to pay a high

price. This old variety originated in 1851 with James Wilson, Albany, New York; introduced in 1854; included in the American Pomological Society's fruit catalog from 1860 to date.

Perfect. Plants numerous, tall, vigorous, healthy, very productive; leaves variable in size, color, and rugoseness, glossy. Flowers early or early midseason, of medium size; petals 5–9, large; stamens numerous. Fruit early midseason; fruit-stems semi-erect; pedicels slender; calyx large, flat or slightly depressed, well colored; sepals broad; berries medium to small, round-conic; apex obtuse or slightly pointed; color dark red, glossy; seeds even with the surface or depressed; flesh red throughout, very firm, juicy, sprightly or acid; quality variable.

Wilson, Jr. 1. *N. Y. Sta. Bul.* **76**:439. 1894.

Introduced by F. L. Ray, East Claridon, Ohio. Perfect. Station plants vigorous, productive; berries medium in size, dark crimson; flesh dark red, acid, moderately firm; fair.

Wilton. 1. *N. Y. Sta. Bul.* **64**:12. 1894.

Originated with B. L. Carr, Saratoga Springs, New York; introduced about 1894. Perfect. As grown here, plants rather weak, moderately numerous, unproductive; fruit-stems short; fruit small to medium, round-conic, firm; good; midseason.

Winchell. 1. *Va. Sta. Tech. Bul.* **11**:102. 1916.

Winchell Beauty. 2. *Md. Sta. Bul.* **160**:218. 1911.

Introduced about 1902. Imperfect. Plants vigorous; berries medium to large, round-conic, light crimson; flesh light red, medium firm, mildly subacid; fair; midseason.

Windsor. 1. *Mich. Sta. Bul.* **104**:68. 1894.

Windsor Chief. 2. *Am. Pom. Soc. Cat.* 42. 1879. 3. *N. Y. Sta. Bul.* **24**:337. 1890.

Originated in 1875 with C. A. Gardner, Dimondale, Michigan, as cross between Champion and Charles Downing; included in the American Pomological Society's fruit catalog from 1879 to 1883. Imperfect. On the Station grounds, plants very vigorous, healthy, productive; fruit-stems long, erect, stiff; fruit large, roundish, glossy dark red, firm, pleasantly acid, well flavored; good; early; so similar to Champion that it has largely displaced that variety.

Wine. 1. *Md. Sta. Bul.* **160**:218. 1911.

Introduced by E. W. Townsend & Sons, Salisbury, Maryland; resembles Dunlap. Perfect. Plants vigorous; berries medium in size, roundish cordate, dark scarlet; flesh light red, moderately firm, juicy, subacid; fair.

Winner. 1. *N. Y. Sta. Bul.* **401**:192. 1915.

A chance seedling which originated with W. E. Shoemaker, Laceyville, Pennsylvania, about 1909. Perfect. In the Station beds, plants numerous, vigorous, very productive, healthy; leaves large, with very deep margin serrations; fruit-stems unusually long, variable in thickness, very prostrate; fruit large, holds up well in size, distinctly wedge, but variable, dull medium to dark red, not juicy, firm, very mildly subacid, with red flesh, inferior in flavor; poor; early.

WILSON

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Winnie Warfield. 1. *Can. Cent. Exp. Farm Bul.* **62**:41. 1909.

Originated with W. W. Sewall, Carthage, Missouri; introduced about 1897. Imperfect. Plants vigorous, productive; berries large, round-conic to wedge-shape, scarlet, firm, acid; fair; late.

Wisconsin. 1. *Va. Sta. Tech. Bul.* **11**:102. 1916.

Introduced about 1895 by J. A. Salzer, La Crosse, Wisconsin. Perfect. Berries large, round-conic, bright crimson; flesh light red, moderately firm, acid; good.

Wisconsin Seedling. 1. *Mag. Hort.* **29**:335. 1863.

Raised by Emil Rothe, Watertown, Wisconsin, as a seedling of Triomphe; introduced about 1861. Perfect. Plants hardy, very productive; berries large, round-conic, light scarlet; flesh white, pleasantly subacid; good.

Wonder. 1. *Am. Gard.* **25**:573. 1904.

Sampsel. 2. *Ohio Sta. Bul.* **154**:55. 1904.

Originated in 1899 with S. A. Sampsel, Sandusky, Ohio. Perfect. Plants large, vigorous, productive; berries large, conic, slightly necked, light crimson; flesh light red, firm, mildly subacid; good; midseason.

Wonder (of Shank). 1. *Va. Sta. Tech. Bul.* **11**:102. 1916.

Wild Wonder. 2. *Rural N. Y.* **64**:554. 1905.

A seedling of *Fragaria virginiana*, found by John Shank, Sterling, Illinois; introduced in 1904. Perfect. Plants small but vigorous; berries small to medium, round-conic, bright crimson; flesh light red, moderately firm, mildly subacid; poor; early.

Wonderful. 1. *Gard. Mon.* **27**:178. 1885. 2. *Mich. Sta. Bul.* **189**:115. 1901.

Originated in Ohio; introduced in 1884. Imperfect. Plants productive; berries large, irregular roundish, light crimson, moderately firm, acid; good; midseason.

Woodhouse. 1. *Can. Cent. Exp. Farm Bul.* **5**:23. 1889.

Introduced about 1886. Imperfect. Plants vigorous, productive; berries medium in size, conic, bright scarlet, firm; fair; late.

Woodrow. 1. *N. Y. Sta. Bul.* **447**:78. 1918.

Early Woodrow. 2. *Md. Sta. Bul.* **211**:64. 1918.

Introduced by Wilkins & Company, Salisbury, Maryland, in 1915. Perfect. At this Station, plants intermediate in number and size, healthy, productive; fruit-stems long, prostrate; fruit variable in size, long-wedge to long-conic, furrowed, necked, dull medium to dark red, juicy, very firm, with red flesh, mild; fair; midseason.

Woodruff. 1. *Cult. & Count. Gent.* **50**:820. 1885. 2. *Can. Cent. Exp. Farm Bul.* **5**:22. 1889.

Originated in 1872 by Charles H. Woodruff, Ann Arbor, Michigan. Perfect. Station plants very vigorous, numerous, very productive, with slight leaf-spot; leaf-stems short, upright; fruit small, irregular in shape, very dark red, firm, acid, tough at the center; fair; midseason.

Woolverton. 1. *Rural N. Y.* **50**:527. 1891. 2. *N. Y. Sta. Bul.* **44**:144 1892.

Originated by John Little, Granton, Ontario; introduced in 1891. Perfect. Plants at this Station, vigorous, healthy, productive; fruit medium in size, wedge-conic, crimson, moderately firm, mildly subacid; good; midseason.

Wooster. 1. *N. Y. Sta. Bul.* **336**:67. 1911.

A supposed cross between Sample and Clyde originated in 1904 with E. W. Wooster, South Hancock, Maine. Imperfect. As grown here, plants medium in number, above medium in size and vigor, healthy, unproductive; fruit large, retains size well, round-conic, glossy medium to light red, moderately juicy, mild, subacid to sweet; fair; early.

World Champion. 1. *Mich. Sta. Bul.* **163**:71. 1898. 2. *Can. Exp. Farm Bul.* **62**:41. 1909.

Introduced about 1896. Semi-perfect to perfect. Plants numerous, vigorous, productive; fruit of medium size, roundish, dull dark red with green tips; flesh bright red, medium firm, juicy, subacid; good; late midseason.

World Wonder. 1. *N. Y. Sta. Bul.* **309**:552. 1908.

Originated with R. G. Parsons, Parsonsburg, Maryland; introduced in 1906. Imperfect. On the Station grounds, plants moderately numerous, vigorous, injured by leaf-spot, very productive; fruit-stems short, medium thick, prostrate; fruit above medium in size but drops quickly to small, blunt-wedge, irregularly furrowed, glossy red, firm, decidedly acid, well flavored; good; midseason.

Wyatt. 1. *Mich. Sta. Bul.* **142**:155. 1897.

Originated with Ezra G. Smith, Manchester, New York; introduced about 1896. Perfect. Plants medium in vigor and productivity; fruit of medium size, round-conic, dull crimson; flesh firm; very good; midseason.

Wyoga. 1. *Ohio Sta. Bul.* **178**:61. 1906.

Introduced about 1905; resembles Haverland in plant and fruit. Imperfect. Plants productive; fruit of medium size, regular long-conic, dark crimson; flesh light red, firm, sweet; fair; late.

Wyona

A chance seedling, supposed to be of Gandy, originated prior to 1922 with A. S. Johnson, Washington, D. C. Perfect. In the Station beds, plants very numerous, very vigorous, tall, very productive, healthy; leaves large, dark green; flowers large, late; fruit-stems very long, thick, erect; pedicels unusually long, thick; calyx very large, raised, leafy; seeds raised; fruit large to very large, retains size well, chunky round-conic to wedge, necked, furrowed, glossy medium red, at times green tipped, moderately juicy, firm, subacid, with a hollow center; good to very good; very late.

Yale. 1. *Rural N. Y.* **48**:522. 1889. 2. *N. Y. Sta. Bul.* **44**:144. 1892.

A chance seedling found near the Yale College campus in New Haven in 1883. Perfect. As grown here, plants vigorous, healthy, medium in number; fruit-stems short; fruit of medium size, obtuse-conic, very dark red, very firm, with dark red flesh; fair; late.

Yalu. 1. *Md. Sta. Bul.* **124**:195. 1907.

Originated in 1904 by the Maryland Station as a cross between Johnson and Star. Perfect. Plants medium in number, weak, unproductive; fruit of medium size, round-conic, dull dark crimson; flesh light red, soft, moderately juicy, mildly subacid; fair; early.

Yant. 1. *Ohio Sta. Bul.* **146**:38. 1903.

A chance seedling originated in 1896 with John Yant, Ohio. Perfect. P ants few, vigorous, moderately productive; fruit large, irregular conic, light to dark red; flesh medium red, soft, mild; fair; early.

Yates. 1. *Mich. Sta. Bul.* **142**:153. 1897.

Introduced about 1894. Perfect. Plants vigorous; fruit large, round-conic, light scarlet; flesh light red, soft, mild; good; early midseason.

Zula. 1. *Mich. Sta. Bul.* **142**:155. 1897.

Originated by James Stayman, Leavenworth, Kansas, as a seedling of Cyclone; introduced about 1896. Perfect. Plants numerous, productive; fruit of medium size, long-conic, dark crimson; flesh dark red, moderately firm; good; midseason.

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